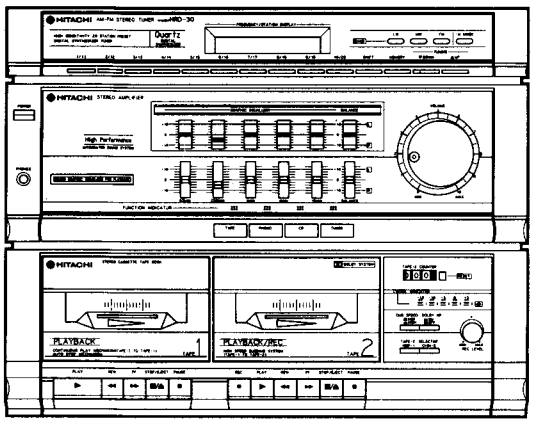
HITACHI
SERVICE MANUAL

TY | **No. 588 EGF**

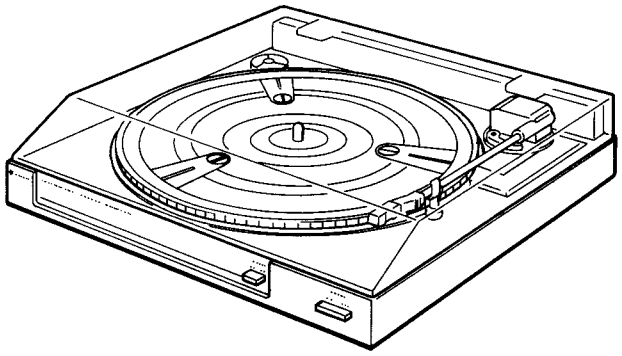
MD30 (HRD-MD30 HT-MD30/HT-MD30X)
[US, CS, ES, ZS, BS, SA, EW]

TN-21SW-985-1 chassis

HRD-MD30



HT-MD30/MD30X



CONTENTS

SPECIFICATIONS 2
DISASSEMBLY 5
ADJUSTMENTS 8
INSPECTION OF MECHANISM 10
LUBRICATION 17
MAINTENANCE 18
DIFFERENCE FOR DESTINATION 18
CIRCUIT DIAGRAM 21-26
PRINTED WIRING BOARD 27-30
WIRING DIAGRAM 31
EXPLODED VIEW 33
REPLACEMENT PARTS LIST 37

INHALTSVERZEICHNIS

TECHNISCHEN DATEN 3
DEMONTAGE 5
EINSTELLUNGEN 11
PRÜFUNG DES LAUFWERKS 13
SCHMIERUNG 17
PFLEGE DES GERÄTS 18
UNTERSCHIEDE NACH
BESTIMMUNGSLÄNDERN 18
SCHALTPLAN 21-26
PRINTPLATTEN 27-30
VERDRAHTUNGSSCHEMA 31
EXPLOSIONSANSICHT 33
ERSATZTEILLISTE 37

TABLE DES MATIERES

CARACTÉRISTIQUE TEQUNIQUES ... 4
DÉMONTAGE 6
RÉGLAGE 14
INSPECTION DU MECANISME 16
LUBRIFICATION 17
ENTRETIEN 18
DIFFÉRENCE EN FONCTION
DU PAYS DE DESTINATION 18
PLAN DE CIRCUIT 21-26
PLAN DE BASE 27-30
SCHÉMA DE CÂBLAGE 31
VUE EXPLOSEE 33
TABLEAU DES PIÈCES 37

SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers. Critical parts are marked with ⚠ in the circuit diagram and printed wiring board.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

STEREO TUNER-AMPLIFIER DOUBLE CASSETTE RECORDER

June 1988 **YOKOHAMA WORKS**

MC-Service

SPECIFICATIONS

HRD-MD30

● GENERAL

Power supply: AC120V, 60 Hz [for US, CS]
AC220V, 50 Hz [for ES, ZS]
AC240V, 50 Hz [for BS, SA]
AC110—120/200—220/230—240V, 50/60 Hz [for EW]

Power consumption: 85W [for BS]
145W [for US, CS]
180W [except BS, US, CS]

Dimensions: 370 (W) x 296 (H) x 300 (D) mm

Weight: 5.7 kg [for BS]
6.6 kg [for SA]
6.5 kg [except BS, SA]

● AMPLIFIER SECTION

Audio output: 10W x 2 (8 ohms, T.H.D. 5% both channel driven, 1 kHz) [for BS]
30 Watts* per channel, min. RMS. at 8 ohms from 100 Hz to 10 kHz, with more than 2% total harmonic distortion. [for US, CS]
30W x 2 (8 ohms, T.H.D. 5% both channel driven, 1 kHz) [except BS, US, CS]

Music power output: 60W x 2 (8 ohms, 1 kHz) [except BS]

Tone control: ±8 dB (at 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

Input sensitivity and Impedance: PHONO 3.5 mV/50 kohms [except BS]
PHONO 240 mV/760 kohms [for BS]
CD 200 mV/30 kohms

Signal to noise ratio (IHF-A network): PHONO 70 dB
CD 80 dB

Output impedance: Speaker 8—16 ohms
Headphones 8 ohms

● TUNER SECTION

Circuit system: FM/AM 2 bands superheterodyne [except BS, ES]
FM/MW/LW 3 bands superheterodyne [for BS, ES]

Tuning range: FM 87.5—108 MHz (50 kHz steps) [except US, CS, SA]
87.9—107.9 MHz (100 kHz steps) [for US, CS, SA]
AM (MW) 522—1,611 kHz (9 kHz steps) [except US, CS, EW]
530—1,620 kHz (10 kHz steps) [for US, CS]
522—1,611/530—1,620 kHz (9/10 kHz steps) [for EW]
LW 153—281 kHz (1 kHz steps) [for BS, ES]

FM stereo separation: 30 dB

Sensitivity: FM 1 μV (S/N 26 dB) [except US, CS]
1 μV (S/N 30 dB) [for US, CS]
AM(MW) 600 μV/m (S/N 20dB)
LW 2,500 μV/m (S/N 20dB) [for BS, ES]

FM signal to noise ratio: 60 dB

Antennas: FM: External antenna (aerial)
AM(MW/LW): Loop antenna outdoor antenna

● TAPE DECK SECTION

Tape: Cassette tape

Tape speed: 4.75 cm/s

Recording system and bias frequency: AC bias, 85 kHz

Track system: 4 tracks 2 channels

Erasing system: AC erase

Frequency Response: Normal 70—14,000 Hz
CrO_2 70—14,000 Hz

Signal to noise ratio: Dolby NR ON 58 dB
OFF 50 dB

Crosstalk: 60 dB

Erase ratio: 65 dB

Motor: DC motor

Wow and Flutter: 0.25% (WRMS)

*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers.

HT-MD30/HT-MD30X

Note: HT-MD30X is for MD30 BS use

Type: 2 speed, belt drive system

Platter: 295 mm

Motor: DC motor

Speed: 2 speed; 33-1/3 and 45 rpm.

Signal to noise ratio: 56 dB (DIN-B)

Wow and flutter: 0.07% (WRMS)

Tonearm Effective length: 205 mm

Cartridge type Magnetic (HT-MD30)
Ceramic (HT-MD30X)

Frequency response: 25—20,000 Hz

Output voltage: 1.8—3.5 mV at 1 kHz, 50 mm/sec (HT-MD30)
500 mV at 1 kHz, 50 mm/sec (HT-MD30X)

Stylus tip: Diamond stylus (N-5732) (HT-MD30)
(N-800-4) (HT-MD30X)

Tracking force: 3.5 ± 1 g

Channel separation: more than 15 dB

Power supply: DC 12V (Secondary supply from HRD-MD30)

Power Consumption: 1.5W

Dimensions: 370 (W) x 340 (D) x 89 (H) mm

Weight: 3 kg

HS-MD30

Speaker unit: 16 cm woofer + 5 cm tweeter

Enclosure type: Bass reflex type

Dimensions: 230 (W) x 363 (H) x 185 (D) mm

Weight: 2.8 kg

SICHERHEITSMASSNAHMEN

Bei Wartungsarbeiten sind die folgenden Sicherheismaßnahmen zu beachten:

1. Da verschiedene Teile dieses Gerätes Sicherheitsfunktionen aufweisen, nur Original-Hitachi-Ersatzteile verwenden.
   Kritische Teile im Netzteil sollten nicht durch ähnliche Teile anderer Hersteller ersetzt werden. Alle kritischen Teile sind im Schaltplan und im Printplatten mit dem Symbol ⚠ gekennzeichnet.
2. Vor der Auslieferung eines reparierten Gerätes an den Kunden muß der Wartungstechniker das Gerät einer gründlichen Prüfung unterziehen, um sicherzustellen, daß sicherer Betrieb ohne die Gefahr von elektrischen Schlägen gewährleistet ist.

TECHNISCHEN DATEN

HRD-MD30

● GENERALE

Spannungsversorgung: AC120V, 60 Hz [für US, CS]
AC220V, 50 Hz [für ES, ZS]
AC240V, 50 Hz [für BS, SA]
AC110—120/200—220/230—240V, 50/60 Hz [für EW]

Leistungsaufnahme: 85W [für BS]
145W [für US, CS]
180W [außer BS, US, CS]

Abmessungen: 370 (B) x 296 (H) x 300 (T) mm

Gewicht: 5.7 kg [für BS]
6.6 kg [für BS]
6.5 kg [außer BS, SA]

● VERSTÄRKER TEIL

Audio ausgang: 10W x 2 (8 Ohm, klirrgrad 5%
beide Kanale angesteuert 1 kHz)
[für BS]
Je Kanal mindestens 30W* (effektiv) bei 8 Ohm von 100 Hz bis 10 kHz, Gesamtklirrfaktor über 2% [für US, CS]
30W x 2 (8 Ohm, klirrgrad 5%
beide kanale angesteuert 1 kHz)
[außer BS, US, CS]

Musik-Ausgangsleistung: 60W x 2 (8 Ohm, 1 kHz)
[außer BS]

Klangregelung: ±8 dB (bei 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

Eingangsemplifindlichkeit und Impedanz: PHONO 3,5 mV/50 kOhm
[außer BS]
PHONO 240 mV/760 kOhms
[für BS]
CD 200mV/30 kOhm

Störspannungsabstand (IHF-A Network): PHONO 70 dB
CD 80 dB

Ausgangsimpedanz: Lautsprecher 8—16 Ohm
Kopfhörer 8 Ohm

*Wurde gemäß den Handelsbestimmungen des Bundeschandelsaufrags für Ausgangsleistungsansprüche von Verstärkern gemessen.

● TUNER-TEIL

Schaltkreissystem: UKW/AM 2 Wellenbereiche
Superhet [außer BS, ES]
UKW/MW/LW 3 Wellenbereiche
Superhet [für BS, ES]

Abstimmbereich: UKW 87,5—108 MHz
(50 kHz Kanallabstand)
[außer US, CS, SA]
87,9—107,9 MHz
(100 kHz Kanallabstand)
[für US, CS, SA]
AM(MW) 522—1611 kHz
(9 kHz Kanallabstand)
[außer US, CS, EW]
530—1620 kHz
(10 kHz Kanallabstand)
[für US, CS]
522—1611/530—1620 kHz
(9/10 kHz Kanallabstand)
[für EW]
LW 153—281 kHz
(1 kHz Kanallabstand)
[für BS, ES]

UKW-Stereotrennung: 30 dB

Empfindlichkeit: UKW 1 μV (Storspannangsabstand 26 dB)
[außer US, CS]
1 μV (Storspannungsabstand 30 dB)
[für US, CS]
AM(MW) 600 μV/m (Storspannangsabstand 20 dB)
LW 2500 μV/m (Storspannungsabstand 20 dB) [für BS, SA]

UKW-Störspannungsverhältnis: 60 dB

Antenne: UKW: Externe Antenne
AM(MW/LW): Rahmenantenne
Außenantenne

● KASSETTENDECK-TEIL

Band: Kassettenband

Bandgeschwindigkeit: 4,75 cm/sek

Aufnahmesystem und Vormagnetisierungsfrequenz: Wechselstrom-Vormagnetisierung
85 kHz

Spursystem: 4-Spur 2-Kanal

Löschsystem: Wechselstromlöschung

Frequenzgang: Normal 70—14000 Hz
CrO_2 70—14000 Hz

Störspannungsverhältnis: Mit Dolby NR 58 dB
Ohne Dolby NR 50 dB

Übersprechdämpfung: 60 dB

Löschverhältnis: 65 dB

Motor: Gleichstrommotor

Gleichlaufschwankungen: 0.25 % (WRMS)

*Wurde gemäß den Handelsbestimmungen des Bundeschandelsaufrags für Ausgangsleistungsansprüche von Verstärkern gemessen.

HT-MD30/HT-MD30X

Hinweis: HT-MD30X ist für die Verwendung mit MD30 BS bestimmt.

Typ: Reimenantrieb mit 2 Drehzahlen

Plattenteller: 295 mm

Motor: Gleichstrom-motor

Drehzahlen: 2 Geschwindigkeiten;
33-1/3 und 45 U/min

Störabstand: 56 dB (DIN-B)

Gleichlaufschwankungen: 0,07% (WRMS)

Tonarm Effektive länge: 205 mm

Tonabnehmer: Magnettyp (HT-MD30)
Keramik (HT-MD30X)

Frequenzgang: 25—20000 Hz

Ausgangsspannung: 1,8—3,5 mV bei 1 kHz, 50 mm/s. (HT-MD30)
500 mV bei 1 kHz, 50 mm/s. (HT-MD30X)

Abtastnadel: Diamantnadel (N-5732) (HT-MD30)
(N-800-4) (HT-MD30X)

Auflagekraft: 3,5 ± 1 g

Kanaltrennung: über 15 dB

Stromversorgung: 12V Gleichspannung
(Sekundäre Stromversorgung von HRD-MD30)

Leistungsaufnahme: 1,5W

Abmessungen: 370 (B) x 340 (T) x 89 (H) mm

Gewicht: 3 kg

HS-MD30

Lautsprecher: 16 cm tieftöner + 5 cm hochtöner

Gehäuse: Tiefenreflexsystem

Abmessungen: 230 (B) x 363 (H) x 185 (T) mm

Gewicht: 2,8 kg

PRÉCAUTIONS DE SÉCURITÉ

Les précautions suivantes doivent être observées chaque fois qu'une réparation doit être faite.

1. Etant donné que de nombreux composants de l'appareil possèdent des caractéristiques relatives à la sécurité, utiliser uniquement des pièces de rechange d'origine Hitachi pour effectuer un remplacement. Ceci se rapporte notamment aux pièces critiques du bloc d'alimentation qui ne doivent en aucun cas être remplacées par celles d'autres fabricants. Les pièces critiques sont accompagnés du symbole ⚠ dans le plan de circuit et sur le plan de base.
2. Avant de retourner l'appareil répare au client le technicien doit procéder à un essai complet pour s'assurer qu'il ne présente aucun danger de chocs électriques.

CARACTÉRISTIQUE TEQUNIQUES

HRD-MD30

● GÉNÉRAL

Alimentation: CA120V, 60 Hz [pour US, CS]
CA220V, 50 Hz [pour ES, ZS]
CA240V, 50 Hz [pour BS, SA]
CA110—120/200—220/230—240V, 50/60 Hz [pour EW]

Consommation électrique: 85W [pour BS]
145W [pour US, CS]
180W [sauf BS, US, CS]

Dimensions: 370 (L) x 296 (H) x 300 (P) mm

Poids: 5.7 kg [pour BS]
6.6 kg [pour SA]
6.5 kg [sauf BS, SA]

● SECTION AMPLIFICATEUR

Sortie audio: 10W x 2 (8 ohms, D.H.T. 5%
les deux canaux entraînes 1 kHz)
[pour BS]
30 Watts* par canal, min. efficace, à 8 ohms de 100 Hz à 10 kHz, avec une distorsion harmonique totale inférieure à 2%
[poru US, CS]
30W x 2 (8 ohms, D.H.T. 5%
les deux canaux entraînes 1 kHz)
[sauf BS, US, CS]

Puissance gesortie musicale: 60W x 2 (8 ohms, 1 kHz)
[sauf BS]

Contrôle de tonalité: ±8 dB (à 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

Sensibilité et impédance d'entrée: PHONO 3,5 mV/50 kohms
[sauf BS]
PHONO 240 mV/760 kohms
[pour BS]
CD 200 mV/30 kohms

Rupport signal/bruit: PHONO 70 dB
(Réseau IHF-A) CD 80 dB

Impédance de sortie: Enceintes acoustiques 8—16 ohms
Casque d'ecoute 8 ohms

● SECTION TUNER

Système de circuit: 2 gammes, d'ondes MF/AM à superhétérodyne [sauf BS, ES]
3 gammes d'ondes MF/PO/GO à superhétérodyne [pour BS, ES]

Plage d'accord: MF 87,5—108 MHz
(Réglé sur 50 kHz)
[sauf US, CS, SA]
87,9—107,9 MHz (Réglé sur 100 kHz)
[pour US, CS, SA]
AM(PO) 522—1611 kHz
(Réglé sur 9 kHz)
[sauf US, CS, EW]
530—1620 kHz
(Réglé sur 10 kHz)
[pour US, CS]
522—1611/530—1620 kHz
(Réglé sur 9/10 kHz)
[pour EW]
GO 153—281 kHz
(Réglé sur 1 kHz)
[pour BS, ES]

Séparation stéréo MF: 30 dB

Sensibilité: MF 1 μV (S/B 26 dB) [sauf US, CS]
1 μV (S/B 30 dB) [pour US, CS]
AM(PO) 600 μV/m (S/B 20 dB)
GO 2500 μV/m (S/B 20 dB) [pour BS, ES]

Rapport signal/bruit MF: 60 dB

Antenne: MF: Antenne exterieure
AM(PO/GO): Antenne cadre AM
Antenne exterieure

● SECTION MAGNETOCASSETTE

Bande: Cassette

Vitesse de défilement: 4,75 cm/s

Système d'enregistrement/ fréquence de polarisation: Polarisation CA, 85 kHz

Système de piste: 4 pistes 2 canaux

Système d'effacement: Effacement CA

Réponse en fréquence: Normal 70—14000 Hz
CrO_2 70—14000 Hz

Rapport signal/bruit: Dolby NR, MARCHE 58 dB
ARRET 50 dB

Transmodulation: 60 dB

Taux d'effacement: 65 dB

Moteur: Moteur CC

Pleurage et scintillement: 0,25% (watts effic.)

*Mesures conformes aux réglements commerciaux de la Federal Trade Commission relatifs à la puissance de sortie des amplificateurs.

HT-MD30/HT-MD30X

Note: Le HT-MD30X doit être utilisé avec le modèle MD30BS

Type: Système d'entraînement par courroie 2 vitesse

Plateau: 295 mm

Moteau: Moteur CC

Vitesse: 2 vitesses; 33-1/3 et 45 t/mm

Rapport signal/bruit 56 dB (DIN-B)

Pleurage et scintillement: 0.07% (watts effic.)

Bras de lecture Longueur réelle: 205 mm

Cellule: Aimant (HT-MD30)
Céramique (HT-MD30X)

Réponse de fréquence: 25—20000 Hz

Tention de sortie: 1,8—3,5 mV à 1kHz, 50 mm/sec. (HT-MD30)
550 mV à 1kHz, 50 mm/sec. (HT-MD30X)

Pointe de lecture: Diamant (N-5732) (HT-MD30)
(N-800-4) (HT-MD30X)

Force d'appui: 3,5 ± 1 g

Séparation de canal: plus de 15 dB

Alimentation: CC12V (alimentation secondaire provenant de HRD-MD30)

Consommation: 1,5W

Dimensions: 370 (L) x 340 (D) x 89 (H) mm

Poids: 3 kg

HS-MD30

Haut-parleurs: 16 cm woofer + 5 cm tweeter

Type d'enceinte: Type bass reflex

Dimensions extérieures: 230 (L) x 363 (H) x 185 (P) mm

Poids: 2,8 kg

DISASSEMBLY

1. **Cover (Fig. 1)**
   Remove six screws ① and then remove four screws ②. Slide the cover in the direction of arrow Ⓐ.
   Caution: Removing the cover by lifting the bottom first may break the front panel tabs. Be sure to lift it straight up first before sliding the cover back.

2. **Front Panel (Fig. 2, 9)**
   Remove two screws ③. Remove the power switch. Then remove two screws ④, three screws ⑤, one screw ⑥ and seven Audio P.W.B. connectors ⓐ. (Refer to Fig. 9 for connectors ⓐ.)

3. **Display P.W.B. (Fig. 3)**
   Remove the volume knob. Then remove fifteen screws ⑦ and two tabs.

4. **Headphones P.W.B. (Fig. 3)**
   Remove two screws ⑧.

5. **Deck P.W.B. (Fig. 4, 5, 9)**
   Remove two screws ⑨, two screws ⑩, five connectors ⓑ and two connectors ⓒ. Open in the direction of arrow Ⓑ. Next, remove the REC level knob, two screws ⑪ and one tab. (Refer to Fig. 9 for connectors ⓒ.)

6. **Cassette Door (Fig. 6)**
   Remove two screws ⑫ and remove the damper. Next, press the cassette door OPEN button to open the cassette door. Then press the two arms in the direction of arrow Ⓒ and pull out. (Do the same for Tape 2.)

7. **Cassette Chassis (Fig. 7)**
   After removing the cassette doors, remove six screws ⑬ and remove the counter belt.

8. **Power Supply P.W.B. (Fig. 8)**
   Remove four screws ⑭.

9. **Audio P.W.B. (Fig. 9)**
   Remove six screws ⑮, one screw ⑯, two screws ⑰ and one connector ⓓ.

DEMONTAGE

1. **Abdeckung (Abb. 1)**
   Die sechs Schrauben ① und dann die vier Schrauben ② herausdrehen. Nun die Abdeckung in Pfeilrichtung Ⓐ schieben.
   Vorsicht: Wird beim Entfernen der Abdeckung zuerst das Unterteil angehoben können die Frontplattenklauen brechen. Daher die Abdeckung zuerst anheben und dann nach hinten schieben.

2. **Frontplatte (Abb. 2, 9)**
   Die beiden Schrauben ③ herausdrehen und die Netztaste abnehmen. Anschließend die beiden Schrauben ④ , die drei Schrauben ⑤ und Schraube ⑥ herausdrehen und die sieben Steckverbinder ⓐ der Audio-Leiterplatte entfernen. (Steckverbinder ⓐ siehe Abb. 9.)

3. **Display-Leiterplatte (Abb. 3)**
   Den Drehknopf des Lautstärkereglers abziehen und die fünfzehn Schrauben ⑦ und die beiden Klauen entfernen.

4. **Kopförer-Leiterplatte (Abb. 3)**
   Die beiden Schrauben ⑧ herausdrehen.

5. **Deck-Leiterplatte (Abb. 4, 5, 9)**
   Die beiden Schrauben ⑨ und ⑩ herausdrehen und die fünf Steckverbinder ⓑ sowie die beiden Steckverbinder ⓒ abziehen. In Pfeilrichtung Ⓑ öffnen. Danach den Drehknopf für Aufnahmepegel (REC) sowie die beiden Schrauben ⑪ und eine Klaue entfernen.
   (Steckverbinder ⓒ siehe Abb. 9.)

6. **Cassettenfachdeckel (Abb. 6)**
   Die beiden Schrauben ⑫ herausdrehen und den Dämpfer abnehmen. Danach durch Drücken der Öffnen-Taste (OPEN) den Cassettenfachdeckel öffnen. Nun die beiden Arme in Pfeilrichtung Ⓒ drücken und herausziehen. (Bei TAPE 2 ebenso vorgehen.)

7. **Cassettenchassis (Abb. 7)**
   Nach Ausbau des Cassettenfachdeckels die sechs Schrauben ⑬ herausdrehen und den Zählwerkriemen abnehmen.

8. **Netzteil-Leiterplatte (Abb. 8)**
   Die vier Schrauben ⑭ herausdrehen.

9. **Audio-Leiterplatte (Abb. 9)**
   Die sechs Schrauben ⑮, Schraube ⑯ und beiden Schrauben ⑰ herausdrehen und Steckverbinder ⓓ abziehen.

DÉMONTAGE

1. Couvercle (Fig. 1)
Enlever six vis ①, puis enlever quatre vis ②. Faire coulisser le couvercle dans la direction de la flèche Ⓐ. Précaution: Le fait de dégager le couvercle en soulevant le bas en premier peut provoquer une rupture des attaches de panneau avant. Veiller à le soulever tout droit avant de faire coulisser le dos du couvercle.

2. Panneau avant (Fig. 2, 9)
Enlever deux vis ③. Enlever l'interrupteur d'alimentation. Puis enlever deux vis ④, trois vis ⑤, une vis ⑥ et sept connecteurs de plaquette audio ⓐ. (Se référer à la Fig. 9 pour les connecteurs ⓐ.)

3. Plaquette d'affichage (Fig. 3)
Enlever le bouton de volume. Puis enlever quinze vis ⑦ et deux attaches.

4. Plaquette de casque (Fig. 3)
Enlever deux vis ⑧.

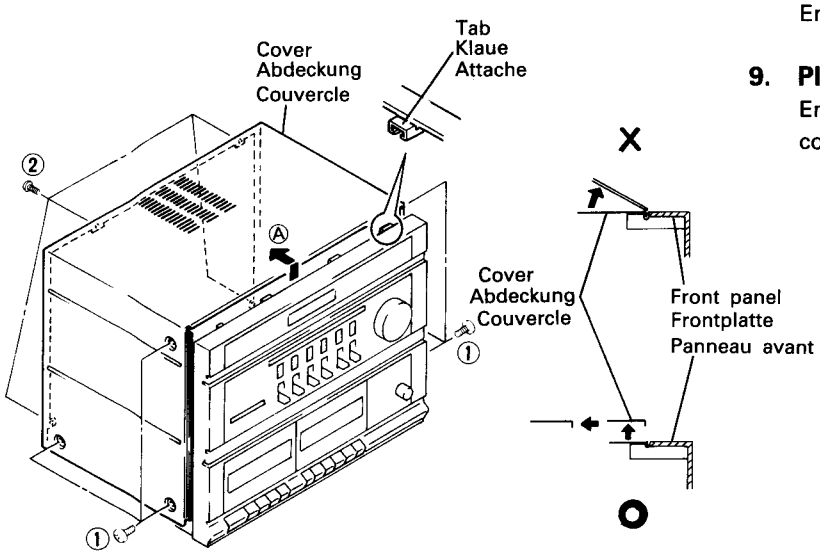


Fig. 1 Abb. 1

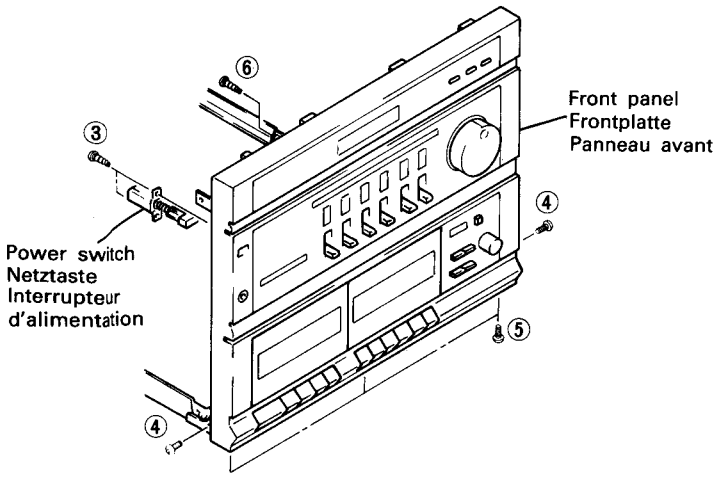


Fig. 2 Abb. 2

5. Plaquette platine (Fig. 4, 5, 9)
Enlever deux vis ⑨, deux vis ⑩, cinq connecteurs ⓑ et deux connecteurs ⓒ. Ouvrir dans la direction de la flèche Ⓑ. Puis, enlever le bouton de niveau d'enregistrement (REC), deux vis ⑪ et une attache. (Se référer à la Fig. 9 pour les connecteurs ⓒ.)

6. Porte du logement cassette (Fig. 6)
Enlever deux vis ⑫ et enlever le dispositif d'amortissement. Puis, appuyer sur le bouton d'ouverture (OPEN) de la platine afin d'ouvrir la porte du logement cassette. Puis appuyer sur les deux bras dans la direction de la flèche Ⓒ et tirer.
(Suivre la même procédure pour la Platine 2.)

7. Châssis de cassette (Fig. 7)
Après avoir enlevé les portes du logement cassette, enlever six vis ⑬ et enlever la courroie du compteur.

8. Plaquette d'alimentation (Fig. 8)
Enlever quatre vis ⑭

9. Plaquette audio (Fig. 9)
Enlever six vis ⑮, une vis ⑯, deux vis ⑰ et un connecteur ⓓ.

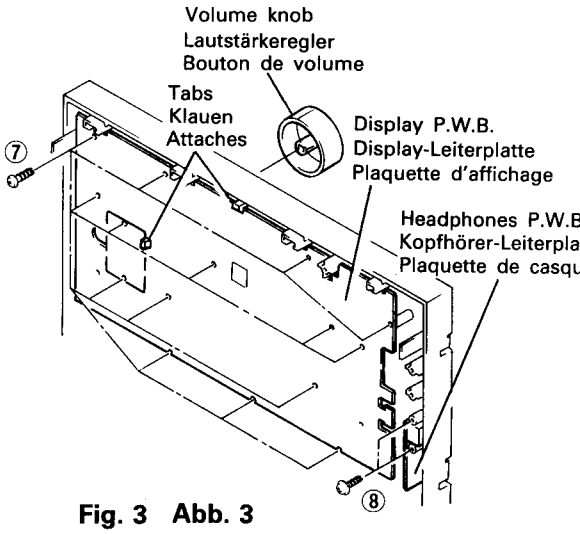


Fig. 3 Abb. 3

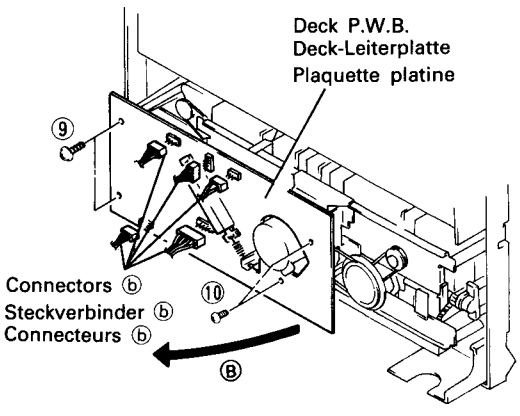


Fig. 4 Abb. 4

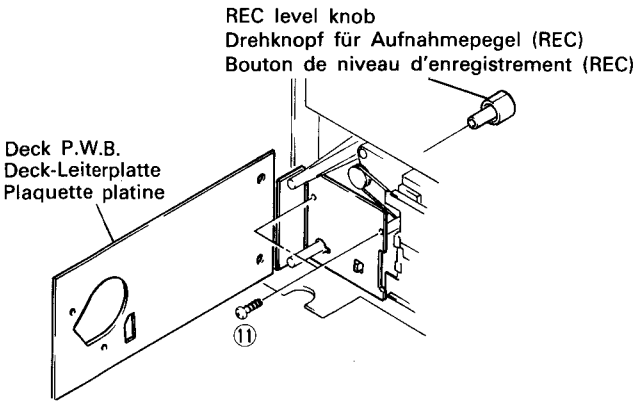


Fig. 5 Abb. 5

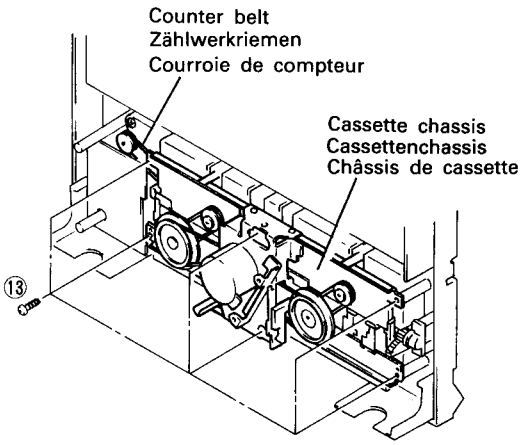


Fig. 7 Abb. 7

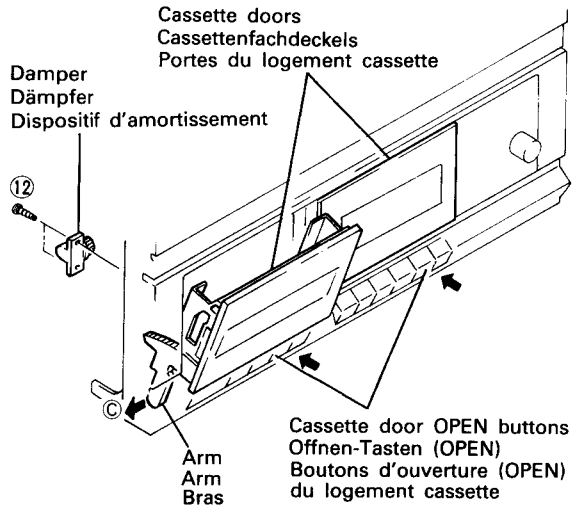


Fig. 6 Abb. 6

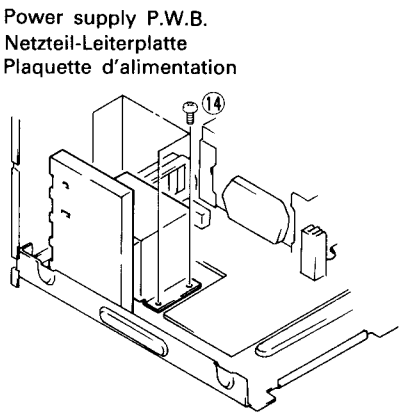


Fig. 8 Abb. 8

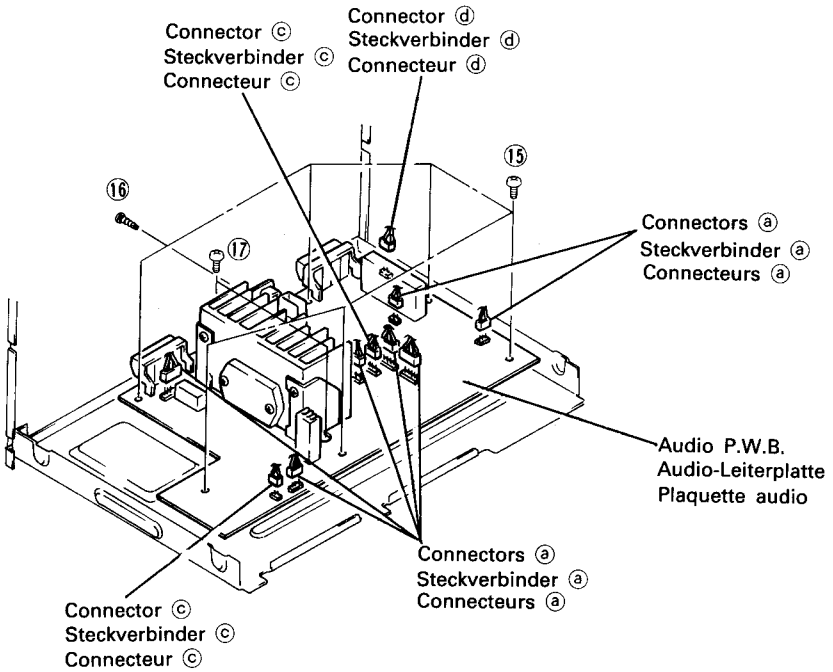


Fig. 9 Abb. 9

ADJUSTMENTS

HRD-MD30

1. RADIO SECTION

- **Adjustment points**

AUDIO P.W.B.

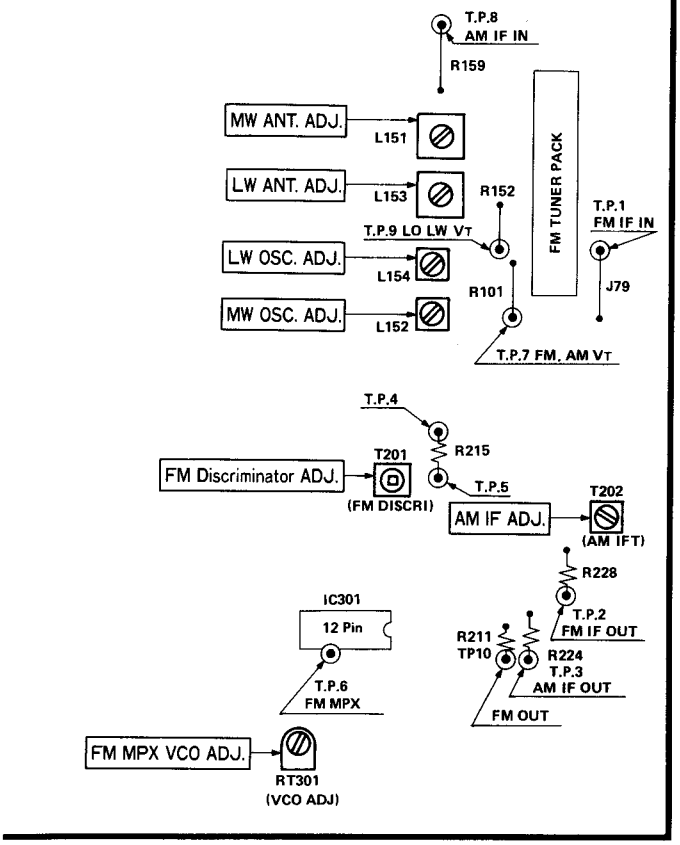


Fig. 10

AM Section

Step		Adjustment Item	Measuring Instrument and Connection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading
			Measuring Instrument	Input Terminal	Output Terminal				
1	(1) (2)	AM IF	Genescope (455 kHz)	TP. 8	TP. 3	450 kHz	Highest	T202	Note 1
2	(1)	MW OSC (Covering)	• AM signal generator (400 Hz, 30% mod.) • VTVM • Oscilloscope	Loop antenna Note 2	TP. 7	522 kHz (except US, CS) 530 kHz (for US, CS)	Lowest	L152	1.2V (except US, CS) 1.25 V (for US, CS)
3	(1)	MW ANT (Tracking)			SP. OUT	600 kHz	600 kHz	L151	Max Note 2
4	(1)	LW OSC (Covering)	• AM signal generator (400 Hz, 30% mod.) • VTVM • Oscilloscope	Loop antenna Note 2	TP. 9	153 kHz	Lowest	L154	1.2V
5	(1)	LW ANT (Tracking)			SP OUT	164 kHz	164 kHz	L153	Note 2

FM Section

Step		Adjustment Item	Measuring Instrument and Connection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading
			Measuring Instrument	Input Terminal	Output Terminal				
1	(1)	Discriminator	• DC balance meter (AUTO state)	FM ANT 400 Hz 22.5 kHz DEV. 60 dB	TP. 4(+) TP.5(−)	98 MHz	98 MHz	T201	0±10 mV
2	(1)	MPX VCO (19 kHz)	Frequency counter	FM antenna terminal 75Ω 60 dB Non modulation	TP. 6 (Connect via 100 kΩ resistor)	98 MHz	98 MHz	RT301	19 kHz ± 50 Hz

Note 1: If the signal from the sweep generator is weak, make sure that the waveform becomes maximum and symmetrical as shown in Fig. 11.
Raise the level of the sweep generator, make sure that range at point Ⓐ becomes as flat as possible as shown in Fig. 12.

Note 2: Initially set the input level to 74 dB/m, and lower the level to minimum as required (approx. 60 dB/m) for progress of the adjustment. And adjust repeatedly so that the output is maximum at the specified frequency. The trimmer condensor has been eliminated, so upper limit frequency tracking adjustment is unnecessary.

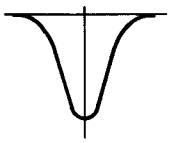


Fig. 11

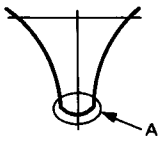


Fig. 12

2. TAPE DECK SECTION

● Adjustment points

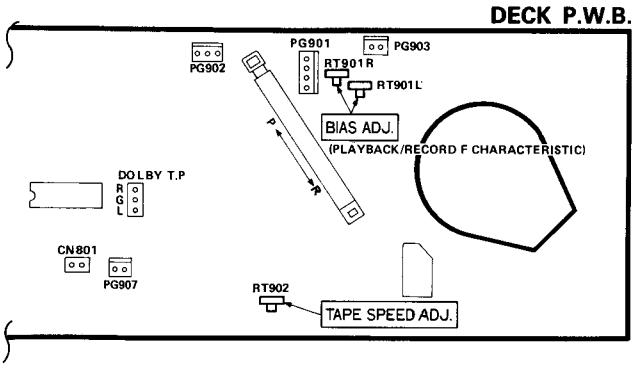


Fig. 13

Symbol No.	Switches and Controls	Position
S903	DOLBY NR	OFF
S902	TAPE SELECT SW	NOR
RV901	REC VOL	MAX
S991	RIF SW	A

Perform the following adjustments in the sequence stated after cleaning the head, pressure roller, and capstan with a head cleaning stick moistened in alcohol.

(1) Head azimuth adjustment

Setting: Playback mode.
Connection:

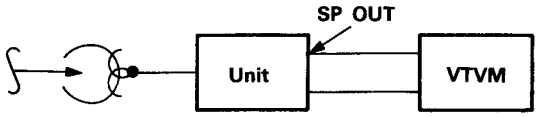


Fig. 14

Adjustment:
Playback test tape (10 kHz) and adjust the azimuth adjustment screw for maximum output however, if the peak level differs between the left and right channels, set it to the left-channel peak level. At this time, the difference between both channel peak levels should be within 2 dB.
After adjustment, lock the screw.

(2) Frequency characteristic adjustment (Bias adj.)

Setting: Recording/Playback mode
Connection:

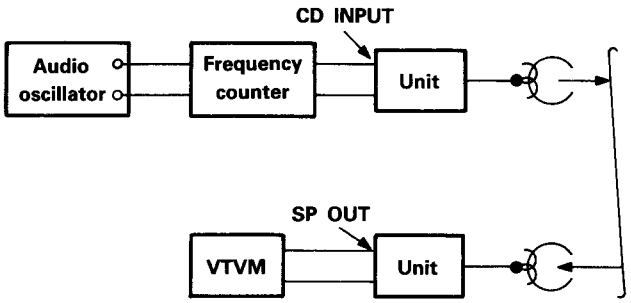


Fig. 15

Adjustment: Set the RT901LR to the center position beforehand.

① Record 400 Hz and 10 kHz signals at the level of −25 dB. Set the record mode, and if there is a difference of more than − 25 dB ± 1.5 dB in output, adjust RT901L, R. Measure the record/playback frequency characteristic of the test tape at the level of −25 dB. Then make sure that the measured value is within the range of the specification.

② Apply 400 Hz signal and adjust the audio oscillator until the meter reads −10 dB, and then record on tape. Playback the recorded tape and check that the output is within −10 dB ± 2 dB.
Note: For CHROME and METAL tapes, make checks only.

(3) Tape speed adjustment

Item	Adjustment point	Procedure
Tape speed adjustment	RT902	Playback test tape (3000 Hz) in TAPE 2 and adjust. (Adjust NOR) NOR → 3000 ± 30 Hz

Speed difference between TAPE 1 and TAPE 2 should be +70 to −40 Hz.

MC-Service

HT-MD30/HT-MD30X

Speed adjustment (Fig. 16)

If the specified speed cannot be obtained after replacing the motor, use the stroboscopic disk. (Adjustment is possible without removing the bottom plate.)

Note: Before adjustment, perform more than 10 minutes warmup with the turntable at 33-1/3 rpm. Carry out this adjustment in the order of (1) and (2).

(1) Set the speed to 33-1/3 rpm, and adjust Ⓐ so as to obtain the rated speed (33-1/3 rpm.)

(2) Set the speed of 45 rpm, and adjust Ⓑ so as to obtain the rated speed (45 rpm).

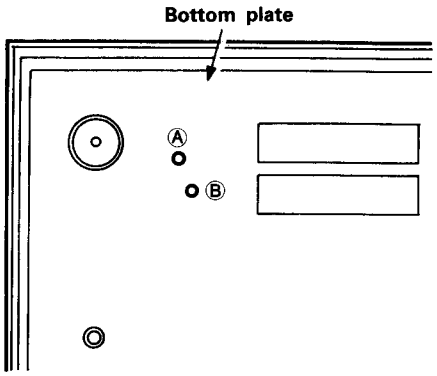


Fig. 16

INSPECTION OF MECHANISM

Item	Checking item		Reference value	Remarks
1	Pressure of pressure roller		300—500 g	Note
2	Take-up torque		30—60g·m	
3	Fast forward/Rewind torque		50g·cm or more	
4	Auto-Stop sensor operation force		40—75 g	
5	Brake torque		15 g·cm or more	Measured in stop mode
6	Back tension torque	Take-up	1—6 g·cm	
		Supply	1—4 g·cm	
7	Flywheel thrust gap		0.05—0.5 mm	
8	Button operation force	Play button	1.1 kg or less	
		FF button	0.8 kg or less	
		Rewind button	1.1 kg or less	
		Eject button	0.6 kg or less	
		Record button	1.0 kg or less	
		Pause button	1.0 kg or less	

Note:

Set this unit in the playback mode and press the pressure roller in the direction of the arrow using a fan type tension gauge, and measure the pressure when the pressure roller is released from the capstan.

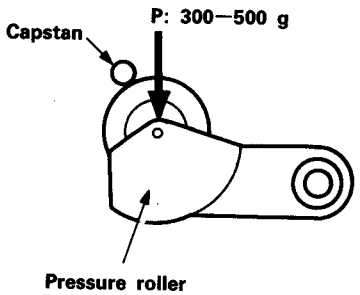


Fig. 17

EINSTELLUNGEN

HRD-MD30

1. RADIOTEIL

● **Einstellpunkte**

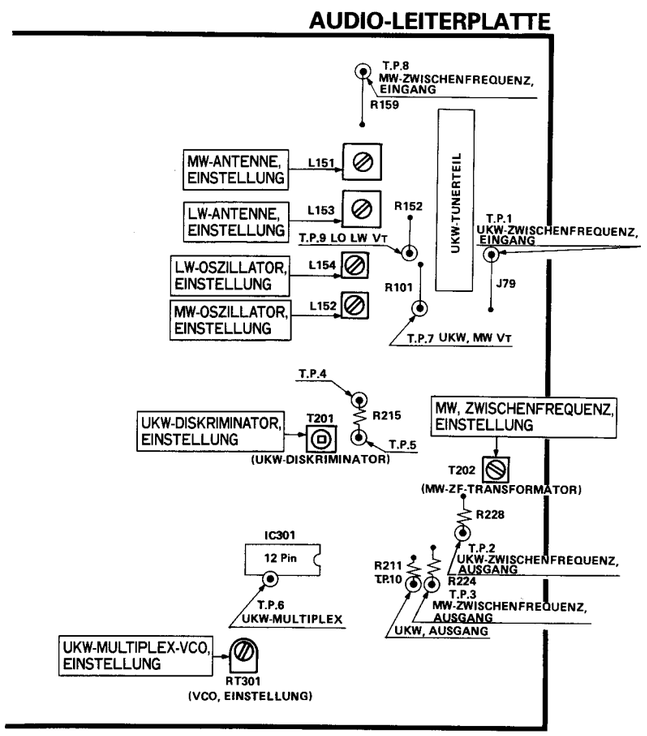


Abb. 10

MW-Teil

Schritt		Einstellteil	Meßgerät und Meßanschlüsse: Meßgerät	Eingangsanschluß	Ausgangsanschluß	Frequenz von Genescope oder Signalgenerator	Skalenanzeige	Einstellung an	Meßwert
1	(1) (2)	MW-Zwischenfrequenz	Genescope (455 kHz)	Meßpunkt TP. 8	Meßpunkt TP. 3	450 kHz	Vollausschlag	T202	Hinweis 1
2	(1)	MW-Oszillator (Abdeckung)	• MW-Signalgenerator (400 Hz, Modulationsgrad 30%) • Röhrenvoltmeter • Oszilloskop	Schleifenantenne, Hinweis 2	Meßpunkt TP. 7	522 kHz (außer US und CS) 530 kHz (für US und CS)	Kleinstmöglicher Zeigerausschlag	L152	1,2 V (außer US and CS) 1,25 V (für US and CS)
3	(1)	MW-Antenne (Nachlauf)			SP., Ausgang	600 kHz	600 kHz	L151	Höchstwert, Hinweis 2
4	(1)	LW-Oszillator (Abdeckung)	• MW-Signalgenerator (400 Hz, Modulationsgrad 30%) • Röhrenvoltmeter • Oszilloskop	Schleifenantenne, Hinweis 2	Meßpunkt TP. 9	153 kHz	Kleinstmöglicher Zeigerausschlag	L154	1.2 V
5	(1)	LW-Antenne (Nachlauf)			SP., Ausgang	164 kHz	164 kHz	L153	Hinweis 2

UKW-Teil

Schritt		Einstellteil	Meßgerät und Meßanschlüsse: Meßgerät	Eingangsanschluß	Ausgangsanschluß	Frequenz von Genescope oder Signalgenerator	Skalenanzeige	Einstellung an	Meßwert
1	(1)	Diskriminator	• Gleichspannungsausgleichsindikator (in AUTO Zustand)	UKW-Antenne, 400 Hz, Hub 22,5 kHz, 60 dB	Meßpunkt TP. 4(+) Meßpunkt TP. 5(−)	98 MHz	98 MHz	T201	0±10 mV
2	(1)	Multiplex-VCO (19 kHz)	Frequenzzähler	UKW-Antennenanschluß, 75 Ohm, 60 dB, unmoduliert	Meßpunkt TP. 6 (über einen Widerstand von 100 kΩ)	98 MHz	98 MHz	RT301	19 kHz ±50 Hz

Hinweis 1: Bei schwachem Ausgangssignal des Wobbelgenerators sicherstellen, daß der Sinalpegel Höchstwert annimmt und der Signalverlauf symmetrisch ist (siehe Abb. 11). Den Pegel des Wobbelgenerators anheben und sicherstellen, daß der Frequenzgang an Punkt (A) möglichst linear verläuft (siehe Abb. 12).

Hinweis 2: Den Eingangspegel zunächst auf 74 dB/m einstellen und dann zur Fortsetzung der Abgleicharbeiten ggf. auf Mindestwert (ca. 60 dB/m) einstellen. Immer so einstellen, daß bei der angegebenen Frequenz ein maximaler Ausgangspegel anliegt. Da bei diesem Gerät ein Trimmkondensator fehlt, ist keine Nachlaufeinstellung der oberen Grenzfrequenz erforderlich.

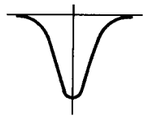


Abb. 11

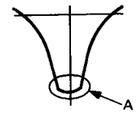


Abb. 12

2. TAPEDECK

● **Einstellpunkte**

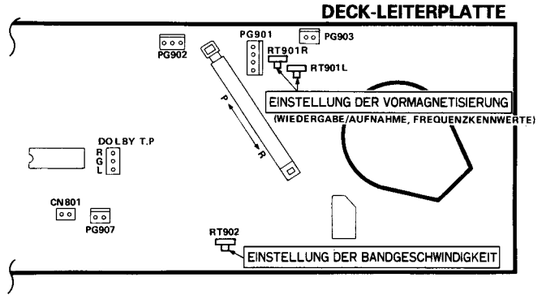


Abb. 13

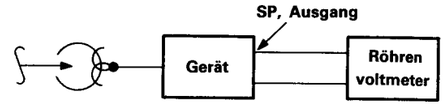
Bezugsbezeichnung	Bedien- und Einstellelemente für	Stellung
S903	Rauschunterdrückungssystem DOLBY NR	OFF (Aus)
S902	Bandsortenwahl	NOR (Normal)
RV901	Aufnahmepegel	MAX (Höchstwert)
S991	RIF	A

Tonkopf, Andruckrolle und Tonwelle mit einem mit Alkohohl befeuchteten Wattestäbchen reinigen. Anschließend die folgenden Einstellarbeiten in der angegebenen Reihenfolge ausführen.

(1) Einstellung des Kopfazimuts

Betriebsart: Wiedergabe

Anschlüsse:



Einstellung:

Das Testband (10 kHz) wiedergeben und mit der Azimut-Einstellschraube auf maximalen Ausgangspegel einstellen. Bei unterschiedlichen Spitzenpegeln auf linkem und rechtem Kanal die Einstellung für den linken Kanal vornehmen. Der Unterschied zwischen den beiden Spitzenpegel darf höchstens 2 dB betragen.

Nach Abschluß der Einstellung die Schraube in ihrer Stellung fixieren.

(2) Einstellung der Frequenzkennwerte (Einstellung der vormagnetisierung)

Betriebsart: Wiedergabe

Anschlüsse:

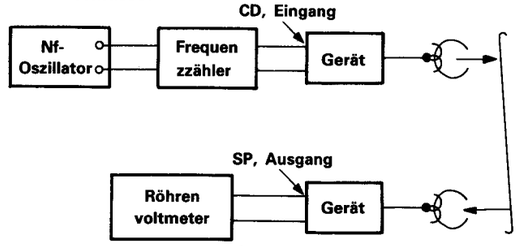


Abb. 15

Einstellung: Zunächst RT901L, R in Mittelstellung bringen.

① 400-Hz- und 10-kHz-Signale mit einem Pegel von −25 dB aufzeichnen. Das Gerät auf Aufnahme stellen und bei einer Abweichung von mehr als −25 dB ± 1,5 dB am Ausgang RT901L, R entsprechend einstellen.
Die Aufnahme/Wiedergabe-Frequenzkennwerte des Testbands bei einem Pegel von −25 dB messen und sicherstellen, daß der Meßwert innerhalb des Toleranzbereichs liegt.

② Ein 300-Hz-Signal zuführen und den Nf-Oszillator so einstellen, daß das Meßgerät −10 dB anzeigt. Anschließend das Signal aufzeichnen. Die Bandaufzeichnung wiedergeben und sicherstellen, daß der Ausgangspegel einen Wert von −10 dB ± 2 dB hat.
Hinweis: Die Prüfungen gelten ausschließlich für Ferrochrom- und Reineisenband.

(3) Einstellung der Bandgeschwindigkeit

Einstellgegenstand	Einstellpunkt	Verfahren
Einstellung der Bandgeschwindigkeit	RT902	Das Testband (300 Hz) in Laufwerk TAPE 2 wiedergeben und entsprechend einstellen. (Einstellung auf Normalwert) Normalwert → 3000 ± 30 Hz

Der Geschwindigkeitsunterschied zwischen TAPE 1 und TAPE 2 muß im Bereich von +70 bis −40 Hz liegen.

PRÜFUNG DES LAUFWERKS

Laufende Nr.	Prüfgegenstand		Bezugswert	Anmerkungen
1	Druck der Andruckrolle		300—500 g	Hinweis
2	Aufwichelmoment		30—60 g·cm	
3	Schnellvorlauf-/Rückspulmoment		50 g·cm oder darüber	
4	Autostopp-Sensor, Betätigungskraft		40—75 g	
5	Bremsmoment		15 g·cm oder darüber	Messung bei Stoppbetrieb
6	Bandspannungsmoment	Aufwickellseite	1—6 g·cm	
		Abwickelseite	1—4 g·cm	
7	Axialspiel des Schwungrads		0.05—0.5 mm	
8	Betätigungskraft der Tasten	Wiedergabetaste	1,1 kg oder darunter	
		Schnellvorlauftaste	0,8 kg oder darunter	
		Rücklauftaste	1,1 kg oder darunter	
		Auswurftaste	0,6 kg oder darunter	
		Aufnahmetaste	1,0 kg oder darunter	
		Pausetaste	1,0 kg oder darunter	

Hinweis:
Das Gerät auf Wiedergabe stellen und die Andruckrolle mit einer Bandspannungslehre (Fächertyp) in Pfeilrichtung drücken; den Druck messen, sobald sich die Andruckrolle von der Tonwelle trennt.

HT-MD30/HT-MD30X

Einstellung der Drehzahl (Abb. 16)
Ist auch nach Austausch des Motors die Drehzahl nicht wie vorgeschrieben, die Stroboskopscheibe verwenden.(Einstellung ohne Ausbau der Bodenplatte möglich.)
Hinweis: Zunächst eine Vorwärmzeit des Plattenspielers von über 10 Minuten bei einter Drehzahl von 33-1/3 min^{-1} abwarten und erst dann mit der Einstellung beginnen.
Die Einstellung in der angegebenen Reihenfolge ausführen:
(1) Den Plattenspieler auf 33-1/3 min^{-1} stellen und dann mit Ⓐ den vorgeschriebenen Wert (33-1/3 min^{-1}) einstellen.
(2) Den Plattenspieler auf 45 min^{-1} stellen und dann mit Ⓑ den vorgeschriebenen Wert (45 min^{-1}) einstellen.

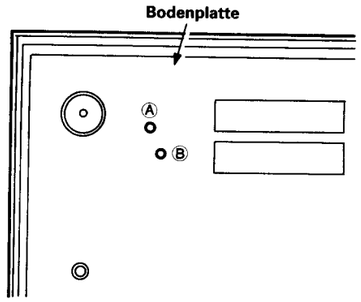


Abb. 16

RÉGLAGE

HRD-MD30

1. SECTION RADIO

● **Points de réglage**

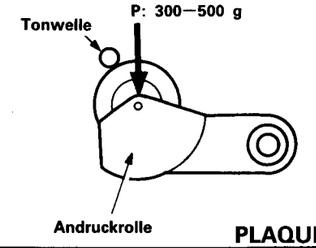


Abb. 17

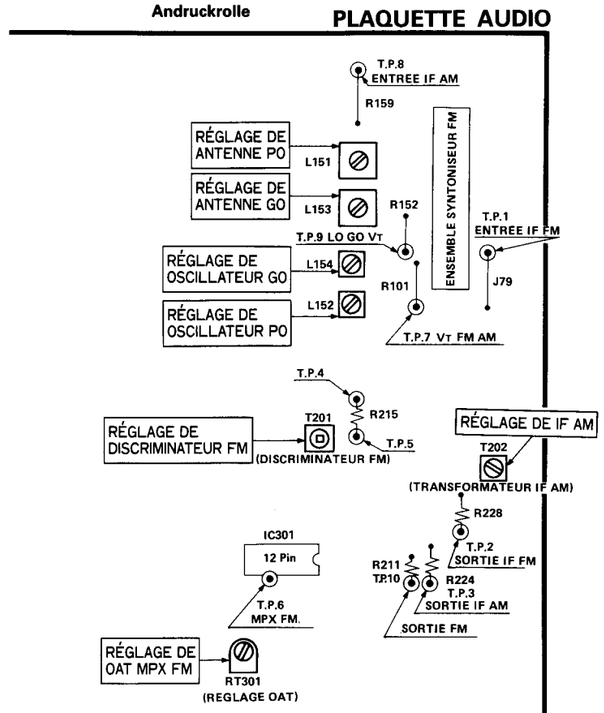


Fig. 10

Section MA

Etape		Poste de réglage	Instrument de mesure et connexion			Fréquence du génescope ou du générateur de signaux	Position de l'indicateur du cadran	Réglez	Lecture
			Instrument de mesure	Borne d'entrée	Borne de sortie				
1	(1) (2)	AM IF (moynne fréquence MA)	Génescope (455 kHz)	TP. 8	TP. 3	450 kHz	Le plus haut possible	T202	Remarque 1
2	(1)	MW OSC (oscillateur PO) (guipage)	• Générateur de signaux MA (400 Hz, 30% de mod.) • VTVM (voltmètre électronique) • Oscilloscope	Antenna à boucle Remarque 2	TP. 7	522 kHz (sauf US, CS) 530 kHz (pour US, CS)	Le plus bas possible	L152	1.2 V (sauf US, CS) 1.25 V (pour US, CS)
3	(1)	MW ANT (antenne PO) (alignement)			SP. OUT (hors circuit)	600 kHz	600 kHz	L151	Max Remarque 2
4	(1)	LW OSC (oscillateur GO) (guipage)	• Générateur de signaux MA (400 Hz, 30% de mod.) • VTVM (voltmètre électronique) • Oscilloscope	Antenna à boucle Remarque 2	TP. 9	153 kHz	Le plus bas possible	L154	1.2 V
5	(1)	LW ANT (antenne GO) (alignement)			SP. OUT (hors circuit)	164 kHz	164 kHz	L153	Max Remarque 2

Section MF

Etape		Poste de réglage	Instrument de mesure et connexion			Fréquence du génescope ou du générateur de signaux	Position de l'indicateur du cadran	Réglez	Lecture
			Instrument de mesure	Borne d'entrée	Borne de sortie				
1	(1)	Discriminateur	• Indicateur de zéro CC (état AUTO)	FM ANT (antenne MF) 400 Hz 22,5 kHz dév 60 dB	TP. 4 (+) TP. 5 (−)	98 MHz	98 MHz	T201	0 ± 10 mV
2	(1)	MPX VCO (oscillateur à fréquence réglée par variation de tension MPX) (19 kHz)	Compteur de fréquences	Borne d'antenne MF 22,5 kHz dév. 60 dB non-modulation	TP. 6 (Connectez par enregistreur 100 kohms)	98 MHz	98 MHz	RT301	19 kHz ± 50 Hz

Remarque 1: Si le signal provenant du générateur de balayage est faible, assurez-vous que la forme d'onde devienne maximale et symétrique comme indiqué en fig. 11.
Augmentez le niveau du générateur de balayge et vérifiez que le parcours en point Ⓐ est aussi plat que possible comme indiqué en fig. 12.

Remarque 2: Placez d'abord le niveau d'entrée à 74 dB/m, et abiassez le niveau au minimum comme il vous l'est demandé (environ 60 dB/m) pour continuer le réglage. Réglez à plusieurs reprises jusqu'à ce que la sortie soit maximale à la fréquence spécifiée.
Comme le condensateur variable a été éliminé, il n'est pas nécessaire de procéder au réglage de poursuite de la fréquence de limite supérienre.

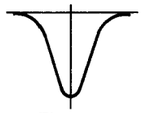


Fig. 11

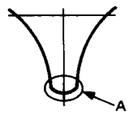


Fig. 12

2. SECTION MAGNETOCASSETTE

● Points de réglage

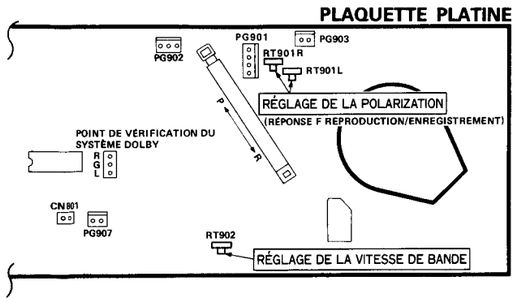


Fig. 13

Neméro de symbole	Commutateurs et commandes	Position
S903	DOLBY NR	OFF (hors circuit)
S902	TAPE SELECT SW (sélecteur de bande)	NOR
RV901	REC VOL (volume de l'enregistrement)	MAX
S991	RIF SW (Commutateur RIF)	A

Effectuez les réglages suivants dans l'ordre spécifié après nettoyage de la tête, du galet-presseur et du cabestan à l'aide d'un coton-tige imbibé d'alcool.

(1) Réglage de l'azimuth de tête

Mise au point: mode de reproduction
Connexion:

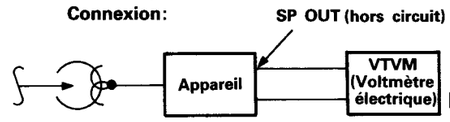


Fig. 14

Réglage:
Reproduisez la bande d'essai (10 kHz) et réglez la vis de réglage azimutal pour obtenir une sortie maximale, néanmoins, si le niveau de crête diffère entre le canal gauche et le canal droit, réglez-le au niveau de crête du canal gauche. A ce moment, la différence entre les deux niveaux de crête des canaux devrait être d'un ordre de 2 dB.
Après réglage, vissez la vis.

(2) Réglage caractéristique des fréquences (réglage de la polarization)

Mise au point: mode d'enregistrement/reproduction
Connexion:

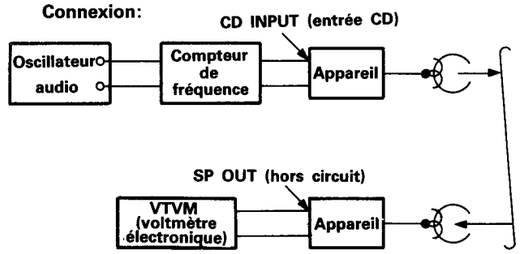


Fig. 15

Réglage: Au préalable, positionner RT901LR au centre.

① Enregistrez des signaux de 400 Hz et 10 kHz à un niveau de −25 dB. Placez en mode d'enregistrement, et si vous obtenez une différence de plus de −25 dB ± 1,5 dB à la sortie, réglez RT901L, R.
Mesurez la fréquence d'enregistrement/reproduction caractéristique de la bande d'essai au niveau de −25 dB. Puis vérifiez que la valeur mesurée est comprise dans la gamme de spécification.

② Appliquer un signal de 400 Hz et régler l'oscillateur audio jusqu'à ce que le compteur indique −10 dB, puis enregistrer sur la band. Reproduire la bande enregistrée et vérifier que le niveau de sortie soit de −10 dB ± 2 dB.
Remarque: Pour les bandes au chrome et au métal, ne faire que des vérifications.

(3) Réglage de la vitesse de bande

Point	Réglez	Mise au point
Réglage de la vitesse bande	RT902	Reproduisez la bande d'essai (3000 Hz) sur TAPE 2 pour effectuer le réglage (réglez en position NOR). NOR (vitesse normale) → 3000 ± 30 Hz

Le différence de vitesse entre TAPE 1 et TAPE 2 doit être dans +70 à −40 Hz.

HT-MD30/HT-MD30X

Réglage de la vitesse (Fig. 16)
Si la vitesse prévue ne peut être obtenue après avoir remplacé le moteur, utiliser le disque stroboscopique. (Réglage est possible sans enlever la plaque de fond.)
Remarque: Avant le réglage, effectuer un préchauffage au moins 10 minutes la table tournante étant à 33-1/3 tr/mn.
Procéder à ce réglage dans l'ordre de (1) et (2).

(1) Mettre la vitesse sur 33-1/3 tr/mn et régler Ⓐ de manière à obtenir la vitesse nominale (33-1/3 tr/mn).
(2) Mettre la vitesse sur 45 tr/mn et régler Ⓑ de manière à obtenir la vitesse nominale (45 tr/mn).

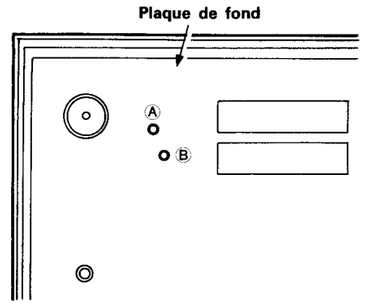


Fig. 16

INSPECTION DU MECANISME

Point	Poste de vérification		Valeur de référence	Remarques
1	Pression du galet-presseur		300—500 g	Remarque
2	Couple d'enroulage		30—60 g·cm	
3	Couple d'avancée rapide/rembobinage rapide		50 g·cm ou plus	
4	Effort à l'utilisation du détecteur pour arrêt automatique		40—75 g	
5	Couple de freinage		15 g·cm ou plus	Mesuré en mode d'arrêt
6	Couple de tension de recul	Enroulage	1—6 g·cm	
		Alimentation	1—4 g·cm	
7	Intervalle de poussée du volant		0,05—0,5 mm	
8	Effort à l'utilisation des touches	Touche de reproduction	1,1 kg ou moins	
		Touche d'avancée rapide	0,8 kg ou moins	
		Touche de rembobinage	1,1 kg ou moins	
		Touche d'éjection	0,6 kg ou moins	
		Touche d'enregistrement	1,0 kg ou moins	
		Touche de pause	1,0 kg ou moins	

Remarque:
Placez cet appareil en mode de reproduction, appuyez sur le galet-presseur dans le sens de la flèche à l'aide d'un calibre de tension type éventail, et mesurez la pression lorsque le galet-presseur est libéré du cabestan.

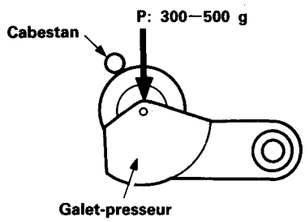


Fig. 17

LUBRICATION

Apply one or two drops of pan motor oil or sonic slider oil to rotating parts. Coat sliding parts with Molycoat (EL-10M). Lubricate once a year or every 1,000 hours of operation. Do not let oil contact belts or idlers.

Rotating parts	Metal to metal	Pan motor oil (10W-40)
	Plastics to metal	Sonic slider oil (#1600)
Sliding parts	(Note) Plastics to plastics Plastics to metal	Molycoat (EL-10M)
Spring vibration prevention		Floyl (GB-TS-1)

NOTE:
When front frame and slide knob are replaced, coat both contacting parts lightly with white grease.

SCHMIERUNG

An die drehenden Teilen ein oder zwei Tropfen Motoröl oder Schmieröl (Sonic Slider) geben, und die Gleitteile mit Molycoat (EL-10M) schmieren.
Einmal im Jahr oder alle 1,000 Betriebsstunden schmieren. Darauf achten, da das Öl nicht auf den Riemen oder die Zwischenscheiben gelangt.

Drehende Teile	Zwischen Metallteilen	Motoröl (10W-40)
	Zwischen Plastik und Metal	Schmieröl (Sonic Slider #1600)
Gleitteile	(Hinweis) Zwischen Plastikteilen Zwischen Plastik und Metall	Molycoat (EL-10M)
Verhinderung von Federvibrationen		Floyl (GB-TS-1)

Hinweis:
Wenn der Frontrahmen und Schieberegler ersetzt werden, beide Kontaktflächen leicht mit weißem Schmierfett überziehen.

LUBRIFICATION

Appliquer une ou deux gouttes d'huile moteur ou d'huile Sonic pour curseur, sur les membres rotatifs. De la graisse Molycoat (EL-10M) est appliquée sur les membres coulissants.
Lubrifier une fois par an ou toutes les 1,000 heures de fonctionnement.
Veiller à ne pas appliquer d'huile sur les courroies ou les galets.

Membres rotatifs	Entre les parties métalliques	Huile moteur (10W-40)
	Entre le moulage et les parties métalliques	Huile Sonic pour curseur (#1600)
Membres coulissants	(Remarque) Entre moulures Entre moulures et piéces métalliques	Molycoat (EL-10M)
Prévention de vibration de ressort		Floyl (GB-TS-1)

Remarque:
Lorsque le châssis avant et le boulon curseur doivent être remplacés, appliquer une couche légère de graisse blanche sur les parties de contact.

MAINTENANCE

■ **Clean cabinet and panels when dirty**
Clean off dirt on the surfaces with a dry cloth. Never use thinners, benzene or alcohol since these will damage the surface finish.

ENTRETIEN

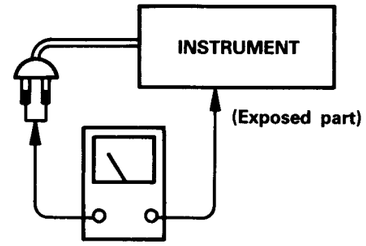
■ **Nettoyage du coffret et des panneaux lorsqu'ils sont sales**
Enlever la poussière des surfaces de l'appareil avec un chiffon sec. Ne jamais utiliser de solvants, de benzine ou d'alcool car ils abîmeraient le fini des surfaces.

PFLEGE DES GERÄTS

■ **Reinigung des Gehäuses und der Oberflächen**
Die Geräteoberflächen mit einem trockenen Tuch reinigen. Keinesfalls Verdünner, Waschbenzin oder Alkohol verwenden, da durch diese scharfen Mittel die Oberflächenbeschichtung angegriffen wird.

Check that exposed parts are acceptably insulated from the supply circuit before returning the instrument repaired to the customer.

- **Checking method**
  Operate switch is set to ON.
  Next, measure the resistance value between the both poles of attachment cup (Power supply plug) and the exposed parts (Parts such as Knob, Cover, etc. where the customer is easy to touch.) and check that the resistance value is 500 kohms or more.



Insulation tester (DC 500V)

DIFFERENCE FOR DESTINATION [for DISPLAY/DECK P.W.B.]
UNTERSCHIEDE NACH BESTIMMUNGSLÄNDERN [für DISPLAY/DECK-LEITERPLATTE]
DIFFÉRENCE EN FONCTION DU PAYS DE DESTINATION [pour PLAQUETTE D'AFFICHAGE/PLATINE]

☆SYMBOL NO.	US, CS	ES	ZS	EW	SA	BS
C504 ~ C506	—	USE	—	—	—	USE
C665	—	—	USE	—	—	—
C666, C667	—	USE	—	—	—	USE
C989, 993	—	USE	—	—	—	USE
R505 ~ 508	—	USE	—	—	—	USE
R521, R561 ~ 563	—	—	—	USE	—	—
R996, 997	—	USE	—	—	—	USE
Q503, 504	—	USE	—	—	—	USE
Q508, 509	—	—	—	USE	—	—
Q992	—	USE	—	—	—	USE
D512	—	USE	USE	USE	—	USE
D514	—	USE	USE	USE	USE	USE
S515	—	USE	—	—	—	USE
CN202	8P	8P	8P	9P	8P	8P
CN991	—	USE	—	—	—	USE
J277	—	USE	USE	—	USE	USE
J246, 248, 251	USE	—	USE	USE	USE	—
J247, 249, 250	—	USE	—	—	—	USE
J254	—	USE	USE	USE	—	USE
J255	USE	—	—	—	USE	—
J260	—	USE	—	—	—	USE
J278, 286	—	—	—	USE	—	—

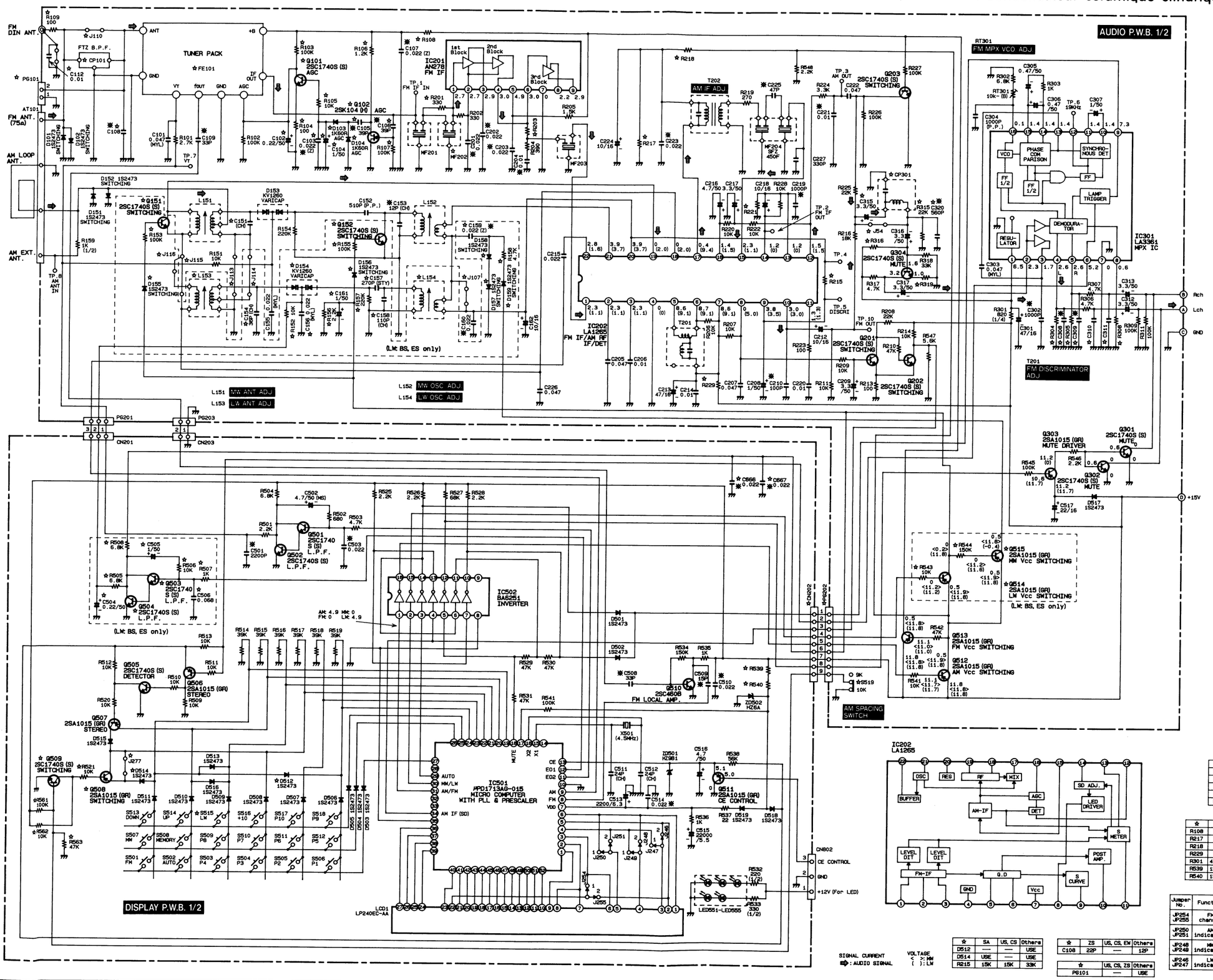
DIFFERENCE FOR DESTINATION [for AUDIO P.W.B.]
UNTERSCHIEDE NACH BESTIMMUNGSLÄNDERN [für AUDIO LEITERPLATTE]
DIFFÉRENCE EN FONCTION DU PAYS DE DESTINATION [pour PLAQUETTE AUDIO]

☆SYMBOL NO.	US, CS	ES	ZS	EW	SA	BS
C102	—	—	USE	—	—	—
C103	—	—	USE	—	—	—
C104	—	—	USE	—	—	—
C105	—	—	USE	—	—	—
C106	—	—	USE	—	—	—
C108	—	USE	USE	—	USE	USE
C112	—	—	USE	—	—	—
C154	—	USE	—	—	—	USE
C156	—	USE	—	—	—	USE
C157	—	USE	—	—	—	USE
C158	—	USE	—	—	—	USE
C159	—	USE	—	—	—	USE
C161	—	USE	—	—	—	USE
C315	—	—	USE	—	—	—
C320	—	—	USE	—	—	—
C401LR	—	—	USE	—	—	—
C404LR	USE	USE	USE	USE	USE	—
C405LR	USE	USE	USE	USE	USE	—
C410LR	—	—	USE	—	—	—
C416	—	—	USE	—	—	—
C418	—	—	USE	—	—	—
C419	—	—	USE	—	—	—
C420	—	—	USE	—	—	—
C702LR	USE	USE	—	USE	USE	USE
C711LR	—	—	USE	—	—	—
C712LR	—	—	USE	—	—	—
C713	USE	USE	USE	USE	USE	—
C714	—	—	USE	—	—	—
C715LR	—	—	USE	—	—	—
C811	—	—	USE	—	—	—
C812	—	—	USE	—	—	—
R001	USE	—	—	—	—	—
R103	—	—	USE	—	—	—
R104	—	—	USE	—	—	—
R105	—	—	USE	—	—	—
R106	—	—	USE	—	—	—
R107	—	—	USE	—	—	—
R109	—	—	USE	—	—	—
R201	USE	USE	—	USE	USE	USE
R152	—	USE	—	—	—	USE
R153	—	USE	—	—	—	USE
R155	—	USE	—	—	—	USE
R156	—	USE	—	—	—	USE
R157	—	USE	—	—	—	USE
R158	—	USE	—	—	—	USE
R315	—	—	USE	—	—	—
R405LR	USE	USE	USE	USE	USE	—
R406LR	USE	USE	USE	USE	USE	—
R543	—	USE	—	—	—	USE
R544, 545	—	USE	—	—	—	USE
R809	USE	USE	USE	USE	USE	—

☆SYMBOL NO.	US, CS	ES	ZS	EW	SA	BS
R810	USE	USE	USE	USE	USE	—
Q101	—	—	USE	—	—	—
Q102	—	—	USE	—	—	—
Q151	—	USE	—	—	—	USE
PG202	8pins	8pins	8pins	9pins	8pins	8pins
Q152	—	USE	—	—	—	USE
Q514	—	USE	—	—	—	USE
Q515	—	USE	—	—	—	USE
D103	—	—	USE	—	—	—
D104	—	—	USE	—	—	—
D154	—	USE	—	—	—	USE
D155	—	USE	—	—	—	USE
D156	—	USE	—	—	—	USE
D157	—	USE	—	—	—	USE
D158	—	USE	—	—	—	USE
D159	—	USE	—	—	—	USE
L153	—	USE	—	—	—	USE
L154	—	USE	—	—	—	USE
T11	—	USE	—	—	—	USE
T12	—	—	USE	—	—	—
T14	USE	USE	USE	USE	USE	—
T15	—	—	USE	—	—	—
T16	—	—	—	USE	—	—
T17	—	—	USE	—	—	—
MF202	—	—	USE	—	—	—
CP101	—	—	USE	—	—	—
CP301	—	—	USE	—	—	—
J54	USE	USE	—	USE	USE	USE
J106	—	USE	—	—	—	USE
J107	USE	—	USE	USE	USE	—
J113	USE	—	USE	USE	USE	—
J114	—	USE	—	—	—	USE
J115	USE	—	USE	USE	USE	—
J116	—	USE	—	—	—	USE
J110	USE	—	USE	USE	USE	—
J131	USE	—	—	—	—	—
J132	—	—	—	—	—	USE
J133	—	—	—	—	—	USE
J138	—	—	—	—	—	USE
J139	—	—	—	—	—	USE
J151	—	—	USE	—	—	—
J152	—	—	—	USE	—	—
J153	USE	USE	—	USE	USE	USE
J154	USE	USE	—	USE	USE	USE
J156	—	—	USE	—	—	—
J157	—	—	USE	—	—	—
WIRE (BROWN)	—	—	—	USE	—	—
WIRE (ORANGE)	—	—	—	USE	—	—
WIRE (BLUE)	—	—	—	USE	—	—
WIRE (GRAY)	—	—	—	USE	—	—
WIRE (WHITE)	—	—	—	USE	—	—
US PIN CORD	—	—	USE	—	—	—
S519	—	—	—	USE	—	—
S991	—	USE	—	—	—	USE
PG101	—	USE	—	USE	USE	USE

CIRCUIT DIAGRAM · SCHALTPLAN · PLAN DE CIRCUIT

※ : Axial lead cylindrical ceramic capacitor.
※ : Zalindrischer Keramikkondensator mit axialer Zuleitung.
※ : Condensateur céramique clindrique à conducteur axial.



※	ZS	Others
Q101	USE	—
Q102	USE	—
D103	USE	—
D104	USE	—
R103	USE	—
R104	USE	—
R105	USE	—
R106	USE	—
R107	USE	—
R109	100	—
R201	—	USE
R203	1K	2.2K
R221	6.2K	6.8K
R304	6.8K	5.6K
R305	6.8K	5.6K
R315	USE	—
R316	180K	120K
R319	680	1K
C102	USE	—
C103	USE	—
C104	USE	—
C105	USE	—
C106	USE	—
C112	USE	Jumper
C315	USE	—
C320	USE	—
CP101	USE	—
CP301	USE	—
MF202	USE	—
FE101	4-rosen	3-rosen
J54	—	USE
J110	—	USE

(LW: BS, ES only)

※	LW	Others
Q151	USE	—
Q152	USE	—
Q503	USE	—
Q504	USE	—
Q514	USE	—
Q515	USE	—
D154	USE	—
D155	USE	—
D156	USE	—
D157	USE	—
D158	USE	—
D159	USE	—
R152	USE	—
R153	USE	—
R155	USE	—
R156	USE	—
R157	USE	—
R158	USE	—
R505	USE	—
R506	USE	—
R507	USE	—
R508	USE	—
R543	USE	—
R544	USE	—
C151	6P (CH)	2P (CH)
C154	USE	—
C156	USE	—
C157	USE	—
C158	USE	—
C159	USE	—
C161	USE	—
C504	USE	—
C505	USE	—
C506	USE	—
C666	USE	—
C667	USE	—
L153	USE	—
L154	USE	—
J115	—	USE
J116	USE	—
J113	—	USE
J114	USE	—
J107	—	USE
S515	USE	—

※	EW	Others
Q508	USE	—
Q509	USE	—
R521	USE	—
R561	USE	—
R562	USE	—
R563	USE	—
S519	USE	—
CN202	9P	8P
P6202	9P	8P
J227	—	USE

※	ZS	US, CS	Others
C308	5600P	0.01	8200P
C309	5600P	0.01	8200P
C310	2200P	4700P	2200P
C311	2200P	4700P	2200P
R308	820	470	390

※	BS	ZS	Others
R108	68	68	150
R217	68K	56K	56K
R218	5.6K	12K	12K
R229	150 (1)	220 (1)	220 (1)
R301	470 (1/4)	820 (1/4)	820 (1/4)
R539	150 (1/4)	100 (1/2)	100 (1/2)
R540	150 (1/4)	100 (1/2)	100 (1/2)

Jumper No.	Function	BS, ES	EW, ZS	US, CS SA
JP254 JP255	FM channel	JP254	JP254	JP255
JP250 JP251	AM indication	JP250	JP251	JP251
JP248 JP248	MW indication	JP249	JP248	JP248
JP245 JP247	LW indication	JP247	JP245	JP246

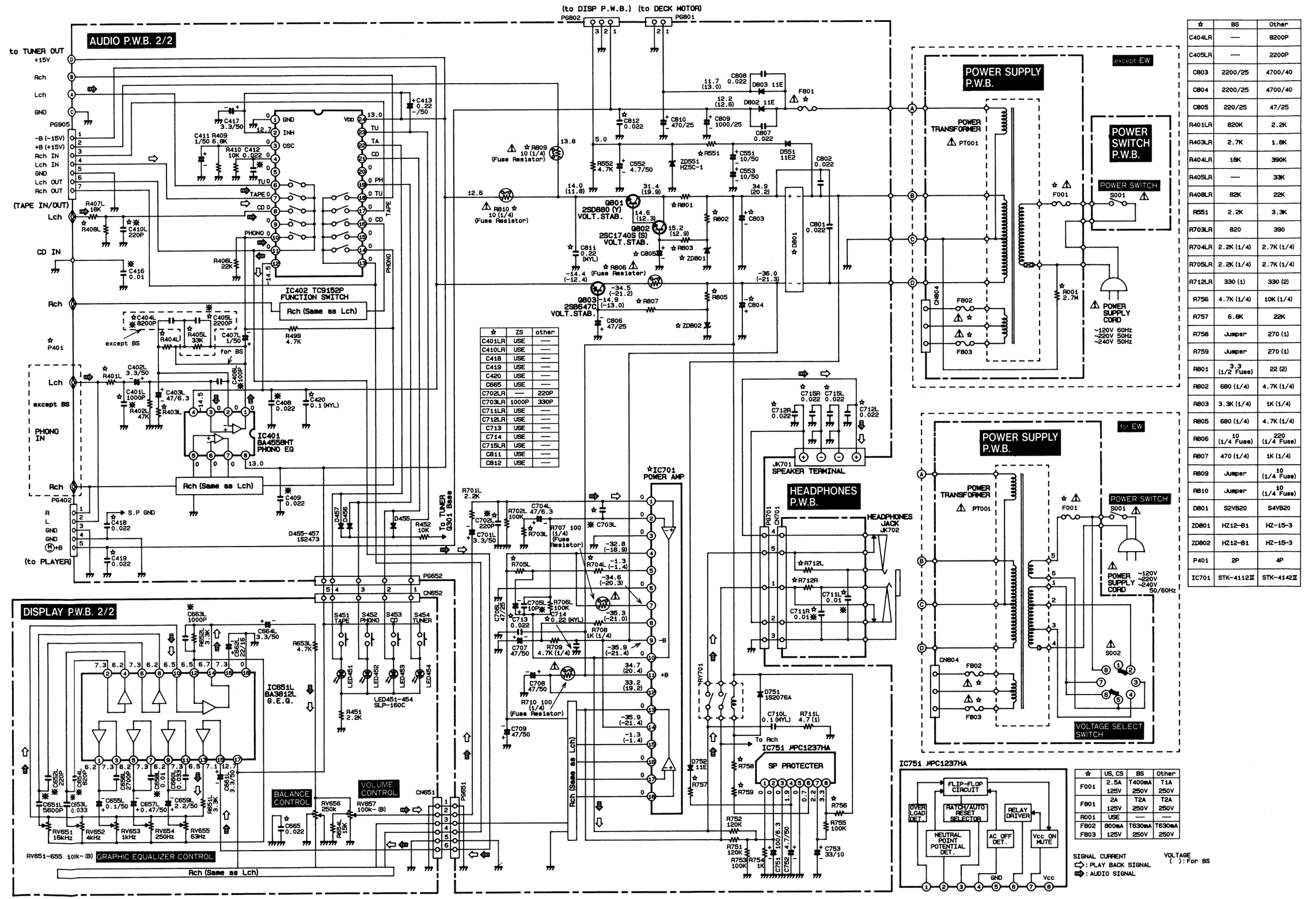
※	SA	US, CS	Others
D512	—	—	USE
D514	USE	—	USE
R215	15K	15K	33K

※	ZS	US, CS, EW	Others
C108	22P	—	12P

※	US, CS, ZS	Others
P6101	—	USE

CIRCUIT DIAGRAM · SCHALTPLAN · PLAN DE CIRCUIT

※ : Axial lead cylindrical ceramic capacitor.
※ : Zalindrischer Keramikkondensator mit axialer Zuleitung.
※ : Condensateur céramique clindrique à conducteur axial.



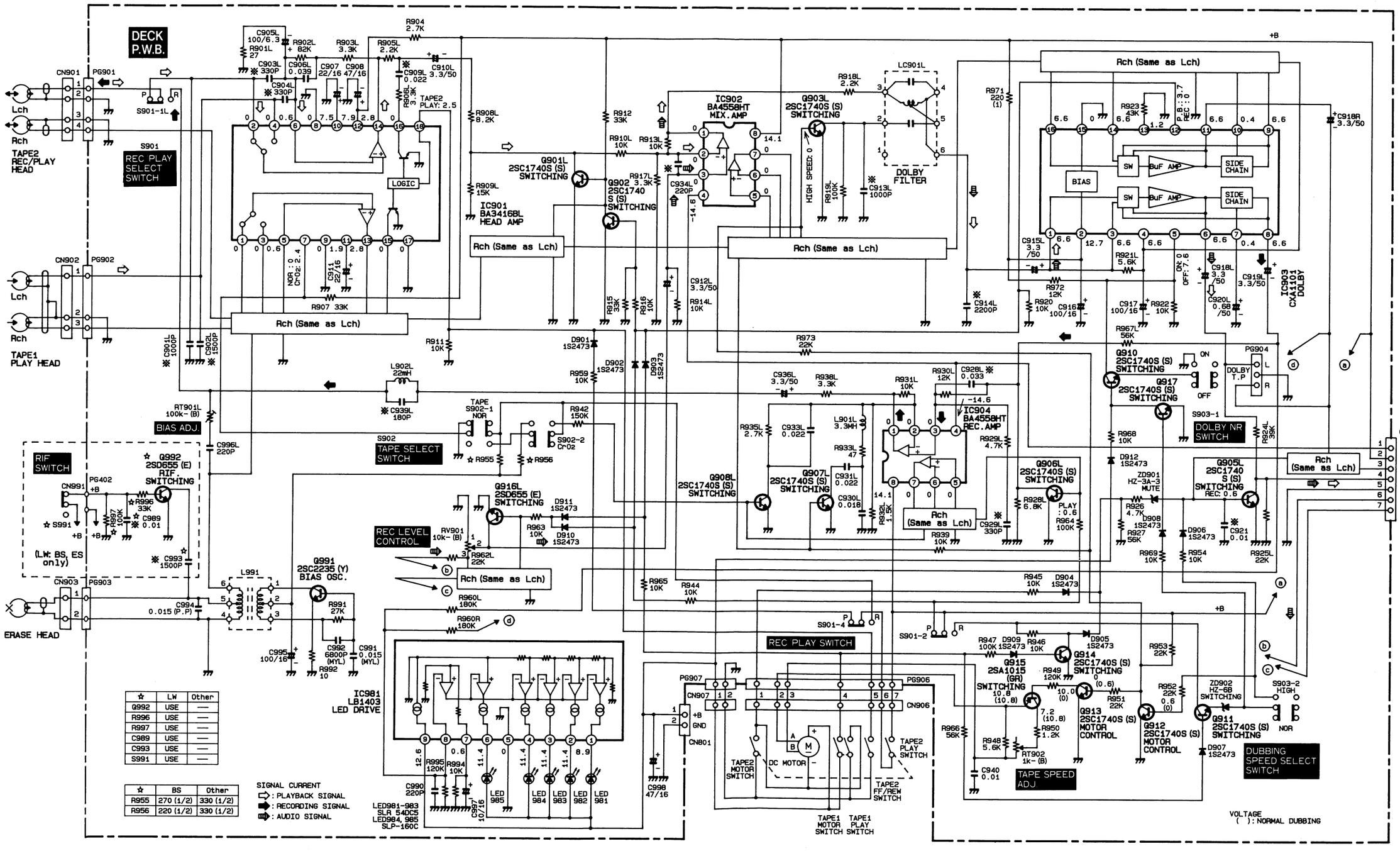
☆	ZS	other
C401LR	USE	—
C410LR	USE	—
C418	USE	—
C419	USE	—
C420	USE	—
C665	USE	—
C702LR	—	220P
C703LR	1000P	330P
C711LR	USE	—
C712LR	USE	—
C713	USE	—
C714	USE	—
C715LR	USE	—
C811	USE	—
C812	USE	—

☆	BS	Other
C404LR	—	8200P
C405LR	—	2200P
C803	2200/25	4700/40
C804	2200/25	4700/40
C805	220/25	47/25
R401LR	820K	2.2K
R403LR	2.7K	1.8K
R404LR	18K	390K
R405LR	—	33K
R408LR	82K	22K
R551	2.2K	3.3K
R703LR	820	390
R704LR	2.2K (1/4)	2.7K (1/4)
R705LR	2.2K (1/4)	2.7K (1/4)
R712LR	330 (1)	330 (2)
R756	4.7K (1/4)	10K (1/4)
R757	6.8K	22K
R758	Jumper	270 (1)
R759	Jumper	270 (1)
R801	3.3 (1/2 Fuse)	22 (2)
R802	680 (1/4)	4.7K (1/4)
R803	3.3K (1/4)	1K (1/4)
R805	680 (1/4)	4.7K (1/4)
R806	10 (1/4 Fuse)	220 (1/4 Fuse)
R807	470 (1/4)	1K (1/4)
R809	Jumper	10 (1/4 Fuse)
R810	Jumper	10 (1/4 Fuse)
D801	S2VB20	S4VB20
ZD801	HZ12-B1	HZ-15-3
ZD802	HZ12-B1	HZ-15-3
P401	2P	4P
IC701	STK-4112II	STK-4142II

☆	US, CS	BS	Other
F001	2.5A 125V	T400mA 250V	T1A 250V
F801	2A 125V	T2A 250V	T2A 250V
R001	USE	—	—
F802	800mA 125V	T630mA 250V	T630mA 250V
F803	125V	250V	250V

CIRCUIT DIAGRAM · SCHALTPLAN · PLAN DE CIRCUIT

※ : Axial lead cylindrical ceramic capacitor.
※ : Zalindrischer Keramikkondensator mit axialer Zuleitung.
※ : Condensateur céramique clindrique à conducteur axial.



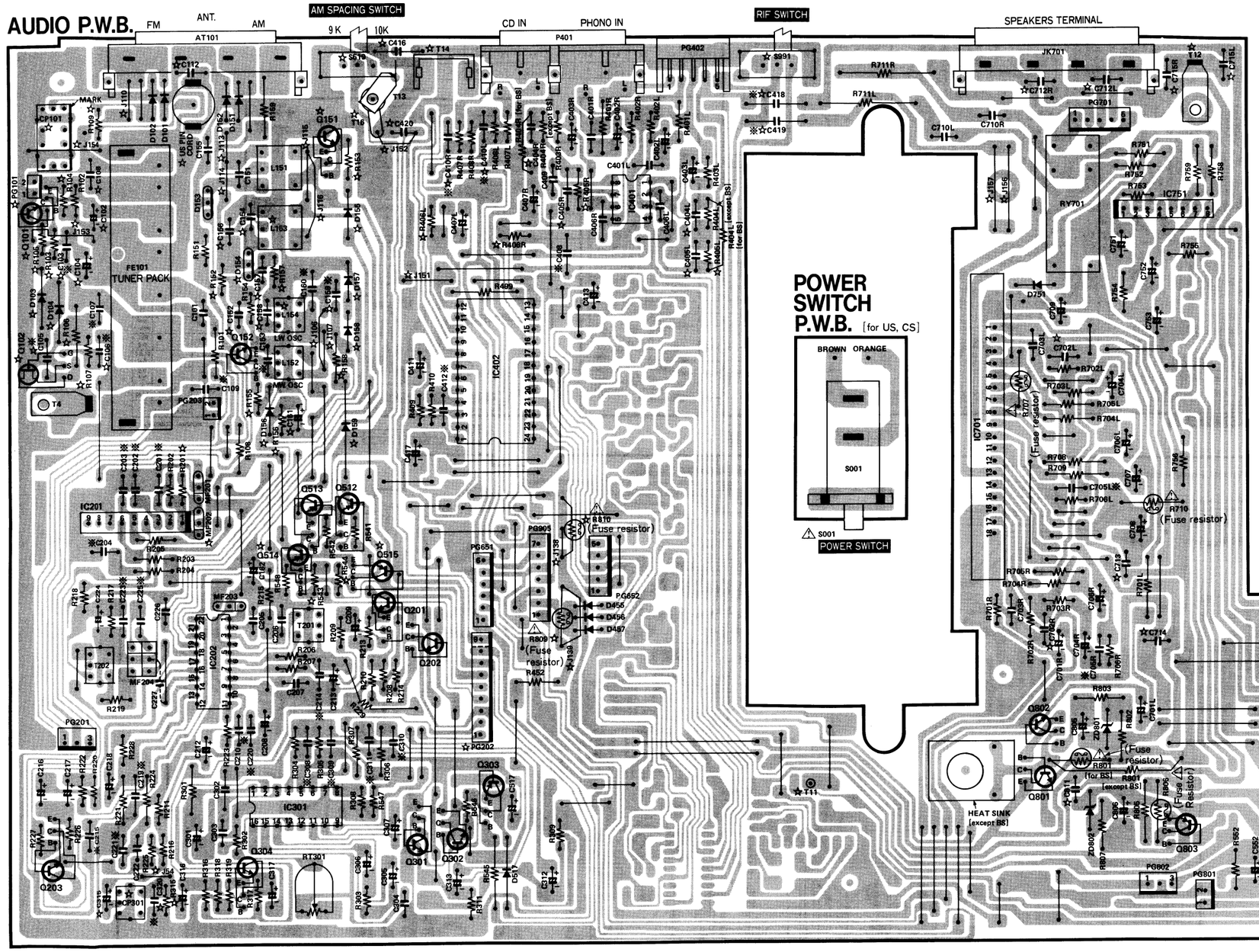
☆	LW	Other
Q992	USE	—
R996	USE	—
R997	USE	—
C989	USE	—
C993	USE	—
S991	USE	—

☆	BS	Other
R955	270 (1/2)	330 (1/2)
R956	220 (1/2)	330 (1/2)

PRINTED WIRING BOARD
PRINTPLATTEN
PLAN DE BASE

※ : Axial lead cylindrical ceramic capacitor.
※ : Zalindrischer Keramikkondensator mit axialer Zuleitung.
※ : Condensateur céramique clindrique à conducteur axial.

The circuit symbol (☆) means difference for destination. (Refer to the table in page 19,20.)
Das Schaltkreissymbol (☆) weist auf unterschiedliche Zielrichtungen hin. (Siehe die Tabelle auf Seite 19,20.)
Le symbol de circuit (☆) signifie qu'il s'agit des différence pour distination. (Consulter la table dans le page 19,20.)



T201 FM DISCRIMINATOR ADJ.
T202 AM IF ADJ.
L151 MW ANT. ADJ.
L152 MW OSC ADJ.
L153 LW ANT ADJ.
L154 LW OSC ADJ.
RT301 FM MPX VCO ADJ.

IC201

Pin No.	1	2	3	4	5	6	7	8	9
Voltage	2.7	2.7	2.9	3.0	4.9	3.0	0	2.2	2.9

IC402

Pin No.	Voltage	Pin No.	Voltage
1	0	13	0
2	12.7	14	0
3	0	15	0
4	0	16	0
5	0	17	0
6	0	18	0
7	0	19	0
8	0	20	0
9	0	21	—
10	0	22	—
11	0	23	—
12	−14.5	24	13.0

Pin No.	1	2	3	4	5	6	7	8
IC401	0	0	0	−14.5	0	0	0	13.0
IC751	0	0	0	1.9	0	0.7	2.2	3.3

Pin No.	1	2	3	4	5	6	7	8
IC301	6.5	2.3	1.7	2.6	2.6	5.2	0	0.6
Pin No.	9	10	11	12	13	14	15	16
IC301	7.3	1.4	1.4	—	1.4	1.4	1.4	0.1

	E	C	B
Q801	14.0 (11.8)	31.4 (19.9)	14.6 (12.3)
Q802	14.6 (12.3)	31.4 (19.9)	15.2 (12.9)
Q803	−14.4 (−12.4)	−34.5 (−21.2)	−14.9 (−13.0)

( ): for BS

IC202

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	2.3 (1.1)	2.3 (1.1)	2.3 (1.1)	0 (0)	8.6 (9.1)	8.7 (9.1)	8.6 (9.1)	0 (5.0)	3.8 (3.5)	3.0 (3.0)	1.3 (1.3)
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	1.5 (1.5)	1.2 (0)	1.2 (0)	2.3 (1.1)	1.4 (1.5)	0.4 (9.4)	0 (2.0)	0 (2.0)	3.9 (3.7)	3.9 (3.7)	2.8 (1.6)

( ): LW

IC502 1 pin

AM	4.9
FM	0
MW	0
LW	4.9

[ ]: MW ( ): LW

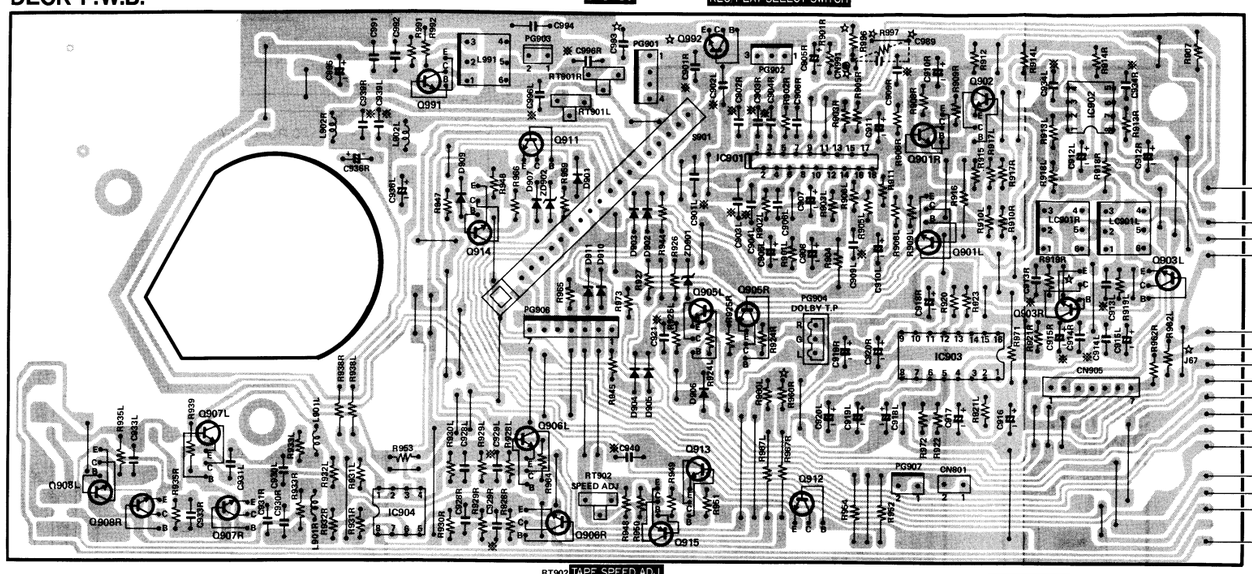
	E	C	B
Q301	0	0	0.6
Q302	0	0	0.6
Q303	11.2 (11.7)	11.2 (0)	10.6 (11.7)
Q304	1.0	3.2	1.6
Q511	5.1	0	5.0
Q512	11.8 [11.8] (11.8)	0.5 [11.9] (11.8)	11.1 [11.7] (11.7)
Q513	11.8 [11.8] (11.8)	0.5 [11.8] (11.8)	11.1 [11.0] (11.0)
Q514	0.5 [11.9] (11.8)	0 [0.2] (11.8)	0 [11.2] (11.2)
Q515	0.5 [11.9] (11.8)	0.5 [11.8] (−0.4)	0 [11.2] (11.6)

PRINTED WIRING BOARD
PRINTPLATTEN
PLAN DE BASE

※ : Axial lead cylindrical ceramic capacitor.
※ : Zalindrischer Keramikkondensator mit axialer Zuleitung.
※ : Condensateur céramique clindrique à conducteur axial.

The circuit symbol (☆) means difference for destination. (Refer to the table in page 18.)
Das Schaltkreissymbol (☆) weist auf unterschiedliche Zielrichtungen hin. (Siehe die Tabelle auf Seite 18.)
Le symbol de circuit (☆) signifie qu'il s'agit des différence pour distination. (Consulter la table dans le page 18.)

DECK P.W.B.



Pin No.	1	2	3	4	5	6	7	8	9
IC651LR	6.2	7.3	7.3	6.2	6.2	7.3	7.3	6.2	6.2
IC701	0	0	0	−32.8 (−18.9)	−1.3 (−1.4)	0	−34.6 (−20.3)	−35.2 (−21.0)	−35.9 (−21.4)
Pin No.	10	11	12	13	14	15	16	17	18
IC651LR	6.5	7.3	6.5	6.5	6.7	7.1	7.3	12.7	0
IC701	0	34.7 (20.4)	33.2 (19.2)	0	−35.9 (−21.4)	−1.3 (−1.4)	0	0	0

( ): for BS

RV901
REC LEVEL CONTROL

S903
DUBBING SPEED
DOLBY NR
SELECT SWITCH

S902
TAPE SELECT SWITCH

	E	C	B
Q903LR	—	—	HIGH SPEED ※
Q905LR	—	—	REC 0.6
Q906LR	—	—	PLAY 0.6
Q912	—	—	0.6 (0)
Q913	—	10.0 (0)	0 (0.6)
Q915	10.8 (10.8)	7.2 (10.8)	—

( ): NORMAL DUBBING

Pin No.	1	2	3	4	5	6	7	8
IC902	0	0	0	−14.6	0	0	0	14.1
IC904	0	0	0	−14.6	0	0	0	14.1

IC981

Pin No.	1	2	3	4	5	6	7	8	9
Voltage	8.9	11.4	11.4	11.4	0	11.4	0.6	—	12.6

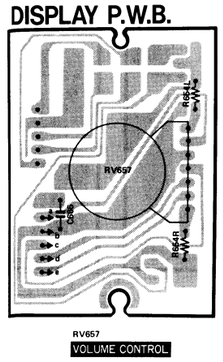
IC901

Pin No.	Voltage	Pin No.	Voltage
1	0	10	7.5
2	0	11	1.9
3	0	12	7.9
4	0	13	2.8
5	0.6	14	2.8
6	0.6	15	0
7	NOR: 0 CrO2: 2.4	16	0
8	0	17	0
9	0	18	TAPE 2 PLAY : 2.5

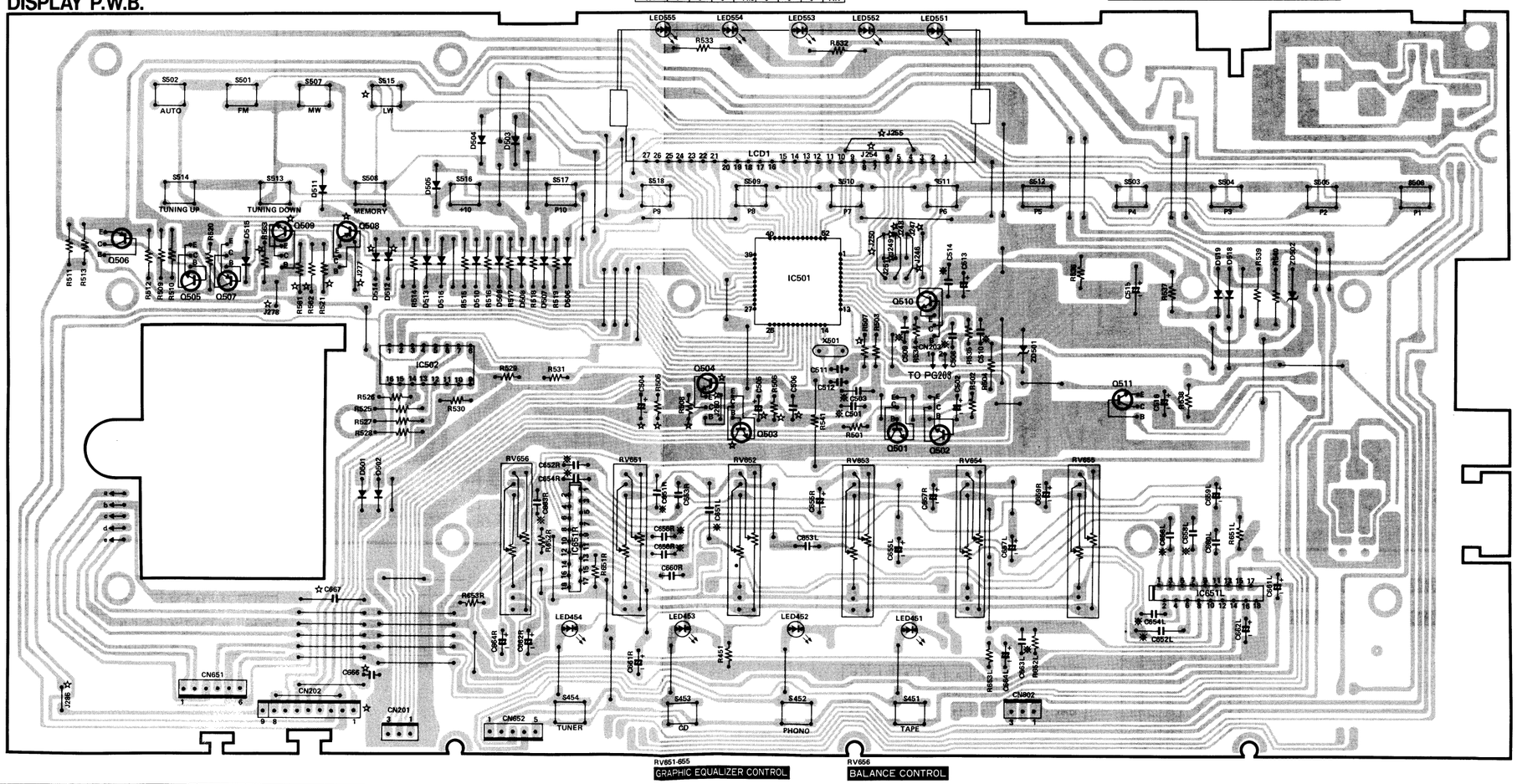
IC903

Pin No.	Voltage	Pin No.	Voltage
1	6.6	9	6.6
2	12.7	10	0.4
3	6.6	11	6.6
4	6.6	12	PB: 3.7 REC: 0
5	ON: 0 OFF: 7.6	13	1.2
6	6.6	14	6.6
7	0.4	15	0
8	6.6	16	6.6

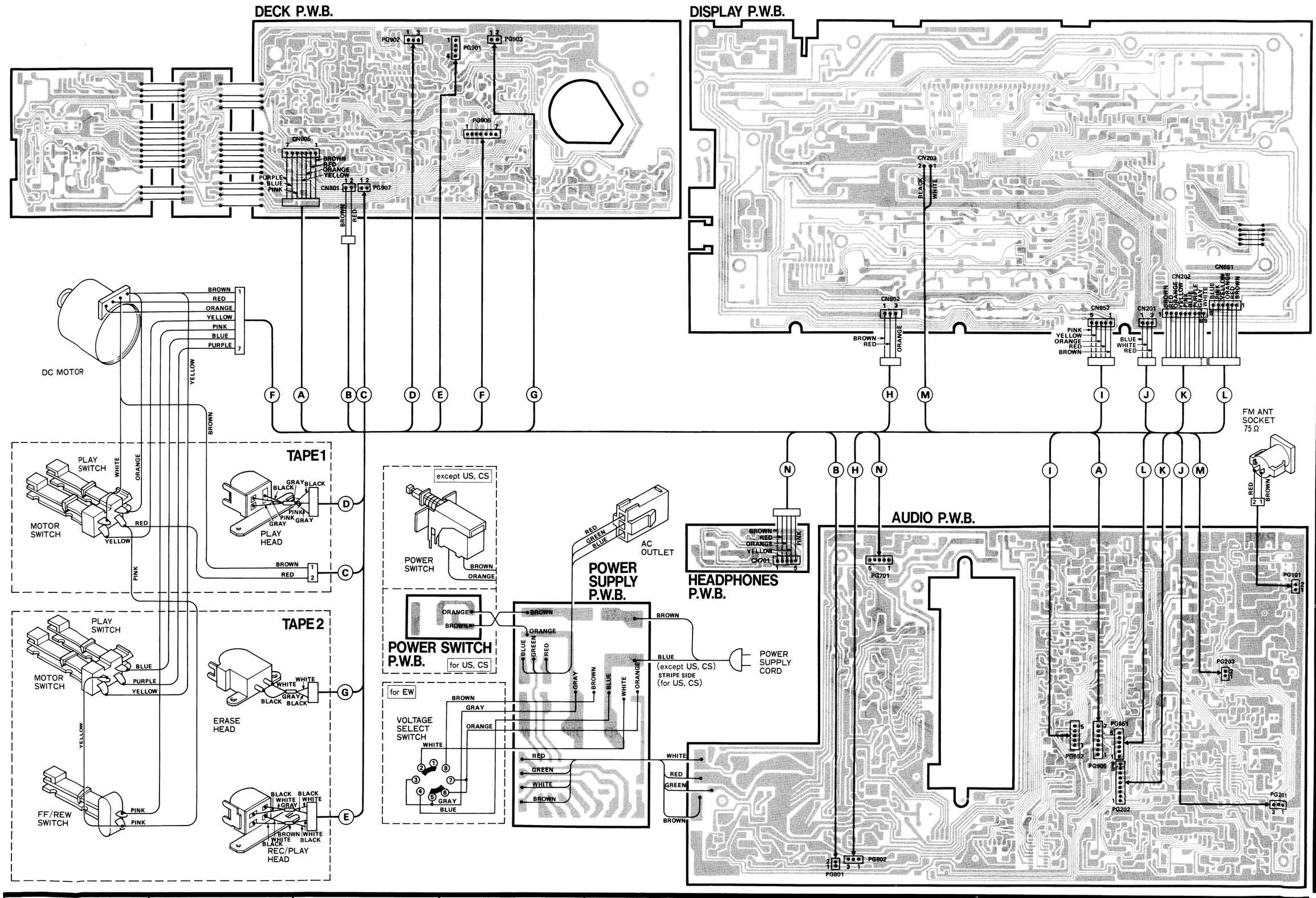
DISPLAY P.W.B.



DISPLAY P.W.B.

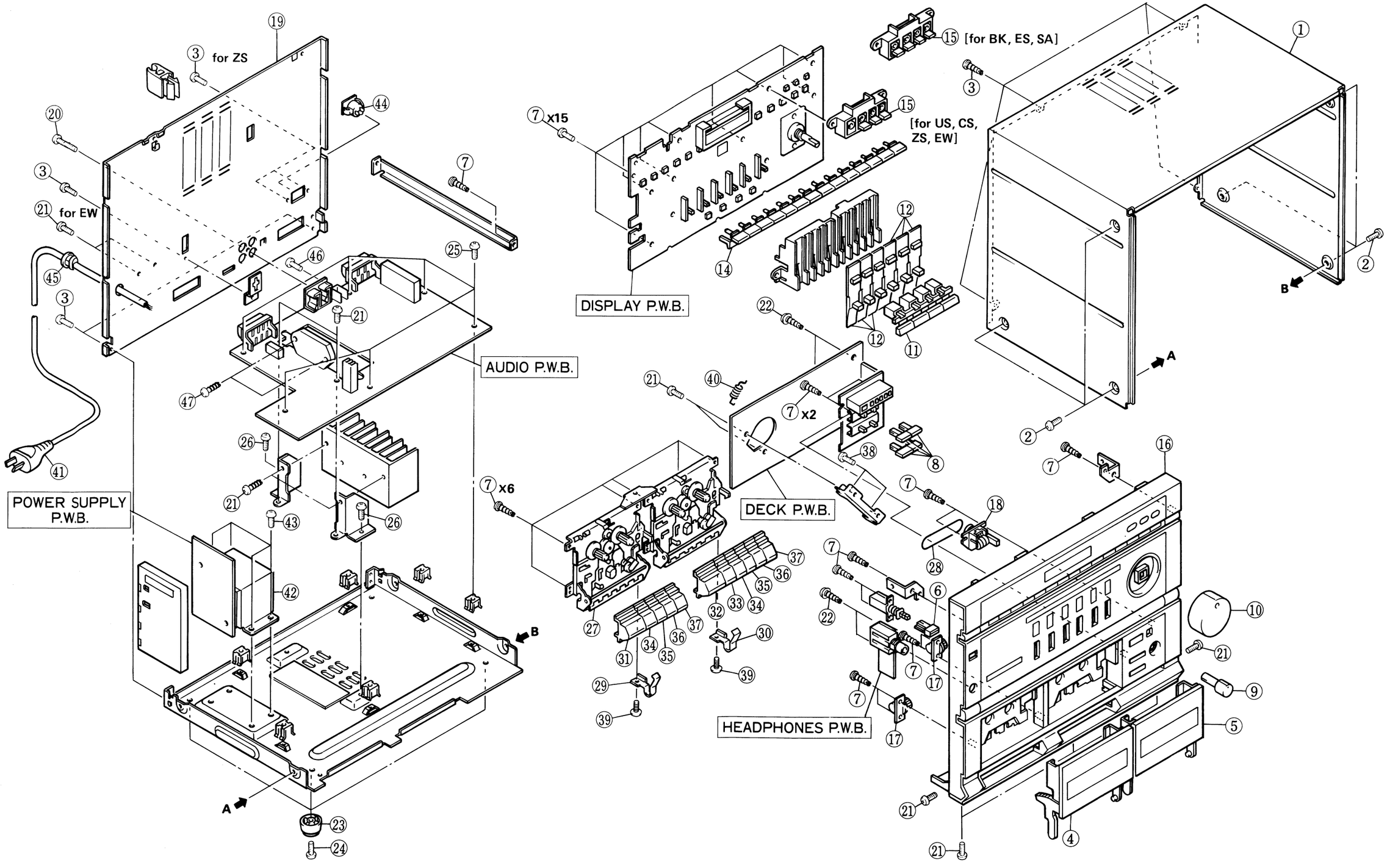


WIRING DIAGRAM · VERDRAHTUNGSSCHEMA · SCHÉMA DE CÂBLAGE



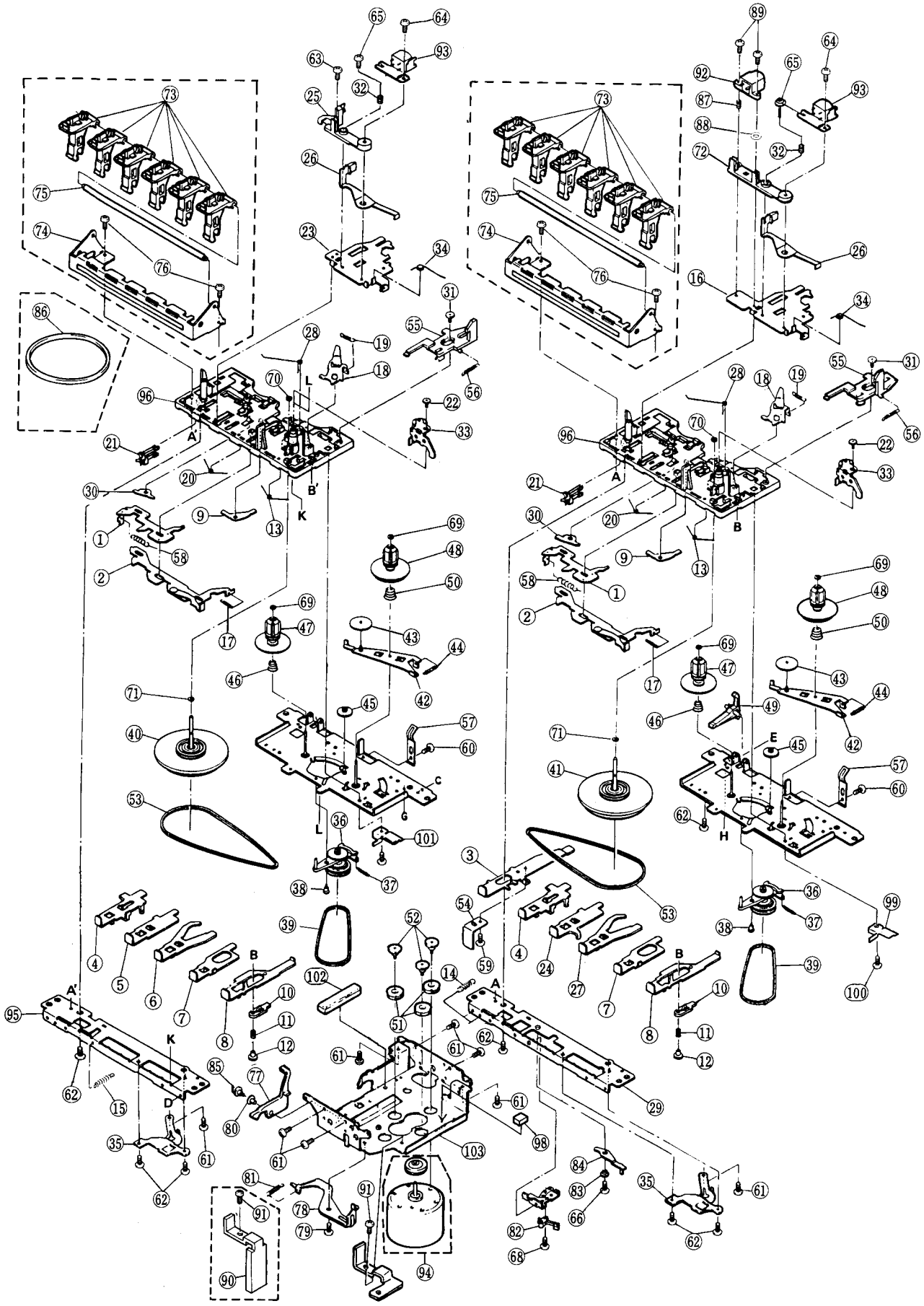
EXPLODED VIEW (Cabinet)
EXPLOSIONSANSICHT (Chassis)
VUE EXPLOSEE (Coffret)

- Nos. are reference Nos. of parts list.
- Diese Numerierung bezieht sich auf die Teileliste.
- Ces numéros correspondent à la liste des pièces.



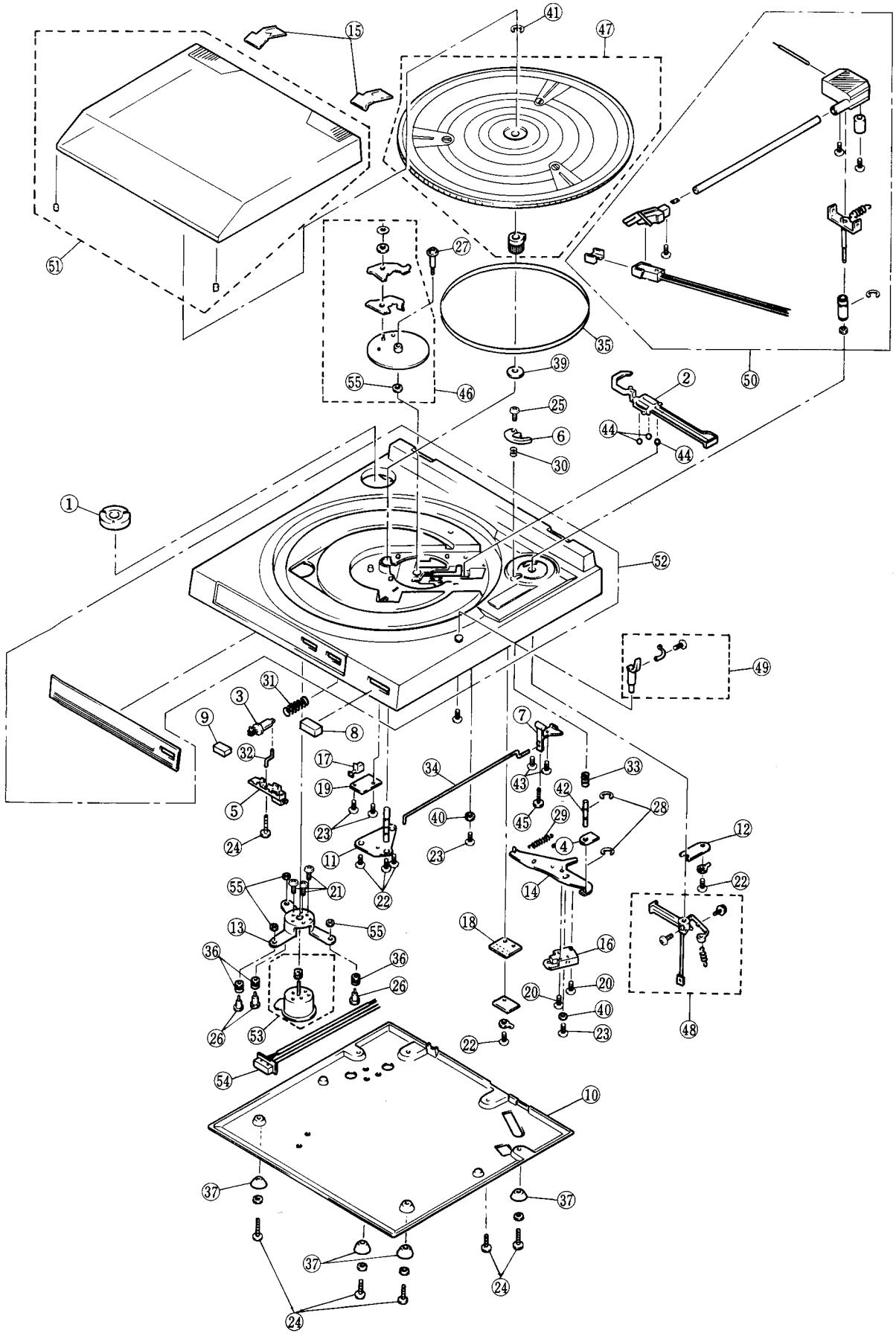
EXPLODED VIEW EXPLOSIONSANSICHT VUE EXPLOSEE
(Cassette Chasis) (Cassetterdech-Chassis) (Châssis de Cassette)

- Nos. are reference Nos. of parts list.
- Diese Numerierung bezieht sich auf die Teileliste.
- Ces numéros correspondent à la liste des pièces.



EXPLODED VIEW (HT-MD30/MD30X)
EXPLOSIONSANSICHT (HT-MD30/MD30X)
VUE EXPLOSEE (HT-MD30/MD30X)

- Nos. are reference Nos. of parts list.
- Diese Numerierung bezient sich auf die Teileliste.
- Ces numéros correspondent à la liste des pièces.



REPLACEMENT PARTS LIST
· ERSATZTEILLISTE
· TABLEAU DES PIÈCES

CC: Cylindrical ceramic
CD: Ceramic discal
EF: Electrolytic
MF: Mylar film
CF: Carbon film
MO: Metal oxide
FR: Fuse resistor
ME: Metal

SYMBOL No.	PART No.	DESCRIPTION
		CAPACITORS
C101	02750152	MF 0.047 μF ±10% 50V
C102	02528022	EL 0.22 μF 50V [for ZS]
C103	0240066	CC 0.022 μF +80% −20% 16V [for ZS]
C104	0252811	EL 1 μF 50V [for ZS]
C105	0230626	CC 39PF ±5% 50V [for ZS]
C106	0230626	CC 39PF ±5% 50V [for ZS]
C107	0240066	CC 0.022 μF +80% −20% 16V
C108	0230620	CC 22PF ±5% 50V [for ZS]
C108	0230614	CC 12PF ±5% 50V [for ES, BS, SA]
C109	0230624	CC 33PF ±5% 50V
C112	0240061	CC 0.01 μF ±30% 16V [for ZS]
C151	0246416	CD 6PF ±0.25PF 50V [for BS, ES]
C151	0246412	CD 2PF ±0.25PF 50V [except BS, ES]
C152	0268323	PP 510PF ±5% 100V
C153	0230654	CC 12PF ±5% 50V
C154	0246453	CD 36PF ±5% 50V [for BS, ES]
C155	02752132	MF 0.022 μF ±5% 50V
C156	0275213	MF 0.022 μF ±5% 50V [for BS, ES]
C157	0228321	ST 270PF ±5% 50V [for BS, ES]
C158	0246465	CD 110PF ±5% 50V [for BS, ES]
C159	0240066	CC 0.022 μF +80% −20% 16V [for BS, ES]
C160	0240066	CC 0.022 μF +80% −20% 16V
C161	0252811	EL 1 μF 50V [for BS, ES]
C162	0252521	EL 10 μF 16V
C201	0240066	CC 0.022 μF +80% −20% 16V
C202	0240066	CC 0.022 μF +80% −20% 16V
C203	0240066	CC 0.022 μF +80% −20% 16V
C204	0240061	CC 0.01 μF ±30% 16V
C205	0240220	CD 0.047 μF ±10% 25V
C206	0240061	CC 0.01 μF ±30% 16V
C207	0240220	CD 0.047 μF ±10% 25V
C208	0252811	EL 1 μF 50V
C209	0252813	EL 3.3 μF 50V
C210	0240033	CC 100PF ±10% 50V
C212	0252521	EL 10 μF 16V
C213	0252525	EL 47 μF 16V
C214	0240061	CC 0.01 μF ±30% 16V
C215	0240066	CC 0.022 μF +80% −20% 16V
C216	0252815	EL 4.7 μF 50V
C217	0252813	EL 3.3 μF 50V
C218	0252521	EL 10 μF 16V
C219	0240045	CC 1000PF ±10% 50V
C220	0240061	CC 0.01 μF ±30% 16V
C221	0240061	CC 0.01 μF ±30% 16V
C222	0240220	CD 0.047 μF ±10% 25V
C223	0240066	CC 0.022 μF +80% −20% 16V
C224	0252521	EL 10 μF 16V
C225	0230628	CC 47PF ±5% 50V
C226	0240220	CD 0.047 μF ±10% 25V
C227	0240039	CC 330PF ±10% 50V
C301	0252525	EL 47 μF 16V
C302	0240045	CC 1000PF ±10% 50V
C303	02750152	MF 0.047 μF ±10% 50V
C304	0268446	PP 1000PF ±5% 100V
C305	02528052	EL 0.47 μF 50V
C306	02528052	EL 0.47 μF 50V
C307	0252811	EL 1 μF 50V
C308	0240058	CC 5600PF ±30% 16V [for ZS]
C308	0240061	CC 0.01 μF ±30% 16V [for US, CS]
C308	0240060	CC 8200PF ±30% 16V [except US, CS, ZS]
C309	0240058	CC 5600PF ±30% 16V [for ZS]
C309	0240061	CC 0.01 μF ±30% 16V [for US, CS]
C309	0240060	CC 8200PF ±30% 16V [except US, CS, ZS]
C310	0240057	CC 4700PF ±20% 16V [for US, CS]
C310	0240053	CC 2200PF ±20% 16V [except US, CS]
C311	0240057	CC 4700PF ±20% 16V [for US, CS]
C311	0240053	CC 2200PF ±20% 16V [except US, CS]
C312	0252813	EL 3.3 μF 50V
C313	0252813	EL 3.3 μF 50V
C315	0252813	EL 3.3 μF 50V [for ZS]
C316	0252813	EL 3.3 μF 50V
C317	0252813	EL 3.3 μF 50V
C320	0240042	CC 560PF ±10% 50V [for ZS]
C401LR	0240045	CC 1000PF ±10% 50V [except ZS]
C402LR	0252813	EL 3.3 μF 50V
C403LR	02522252	EL 47 μF 6.3V
C404LR	0240060	CC 8200PF ±30% 16V [except BS]
C405LR	0240053	CC 2200PF ±20% 16V [except BS]
C406LR	0240033	CC 100PF ±10% 50V
C407LR	0252811	EL 1 μF 50V
C408	0240066	CC 0.022 μF +80% −20% 16V
C409	0240066	CC 0.022 μF +80% −20% 16V
C410LR	0240037	CC 220PF ±10% 50V [for ZS]
C411	0252811	EL 1 μF 50V
C412	0240066	CC 0.022 μF +80% −20% 16V
C413	0252802	EL 0.22 μF 50V
C416	0240061	CC 0.01 μF ±30% 16V
C417	0252813	EL 3.3 μF 50V
C418	0240066	CC 0.022 μF +80% −20% 16V [for ZS]
C419	0240066	CC 0.022 μF +80% −20% 16V [for ZS]
C420	0276011	MF 0.1 μF ±10% 50V [for ZS]
C501	0240053	CC 2200PF ±20% 16V
C502	02528802	EL 4.7 μF 50V
C503	0240066	CC 0.022 μF +80% −20% 16V
C504	02528022	EL 0.22 μF 50V [for BS, ES]
C505	0252811	EL 1 μF 50V [for BS, ES]
C506	0240222	CD 0.068 μF ±10% 25V [for BS, ES]
C508	0230624	CC 33PF ±5% 50V
C509	0230616	CC 15PF ±5% 50V
C510	0240066	CC 0.022 μF +80% −20% 16V
C511	0246449	CD 24PF ±5% 50V
C512	02464492	CD 24PF ±5% 50V
C513	02522422	EL 2200 μF 6.3V
C514	0240066	CC 0.022 μF +80% −20% 16V
C515	0259421	Super capacitor 22000 μF
C516	0252815	EL 4.7 μF 50V
C517	0252522	EL 22 μF 16V
C551	0252821	EL 10 μF 50V
C552	0252815	EL 4.7 μF 50V
C553	0252821	EL 10 μF 50V
C651LR	0240058	CC 5600PF ±30% 16V
C652LR	0240037	CC 220PF ±10% 50V
C653LR	0240218	CD 0.033 μF ±10% 25V
C654LR	0240044	CC 820PF ±10% 50V
C655LR	02528012	EL 0.1 μF 50V
C656LR	0240054	CC 2700PF ±20% 16V
C657LR	0252805	EL 0.47 μF 50V
C658LR	0240061	CC 0.01 μF ±30% 16V
C659LR	0252812	EL 2.2 μF 50V
C660LR	0240218	CD 0.033 μF ±10% 25V
C661LR	0252813	EL 3.3 μF 50V
C662LR	0252522	EL 22 μF 16V
C663LR	0240045	CC 1000PF ±10% 50V
C664LR	0252813	EL 3.3 μF 50V
C665	0240066	CC 0.022 μF +80% −20% 16V [for ZS]
C666	0240066	CC 0.022 μF +80% −20% 16V [for ES, BS]
C667	0240066	CC 0.022 μF +80% −20% 16V [for ES, BS]
C701LR	0252813	EL 3.3 μF 50V
C702LR	0240037	CC 220PF ±10% 50V [except ZS]
C703LR	0240039	CC 330PF ±10% 50V [except ZS]
C703LR	0240045	CC 1000PF ±10% 50V [for ZS]
C704LR	02522252	EL 47 μF 6.3V
C705LR	0230612	CC 10PF ±5% 50V
C706LR	02526252	EL 47 μF 25V
C707	02550112	EL 47 μF 50V
C708	02550112	EL 47 μF 50V
C709	02550112	EL 47 μF 50V
C710LR	02760112	MF 0.1 μF ±10% 50V
C711LR	0240061	CC 0.01 μF ±30% 16V [for ZS]

MC-Service

SYMBOL No.	PART No.	DESCRIPTION
C712LR	02441732	CD 0.022 μF +80% −20% 50V [for ZS]
C713	0244173	CD 0.022 μF +80% −20% 50V [except BS]
C714	0276013	MF 0.22 μF ±10% 50V [for ZS]
C715LR	0244173	CD 0.022 μF +80% −20% 50V [for ZS]
C751	02522312	EL 100 μF 6.3V
C752	0252815	EL 4.7 μF 50V
C753	02523232	EL 33 μF 10V
C801	0244173	CD 0.022 μF +80% −20% 50V
C802	0244173	CD 0.022 μF +80% −20% 50V
C803	0252642	EL 2200 μF 25V [for BS]
C803	0255001	EL 4700 μF 40V [except BS]
C804	0252642	EL 2200 μF 25V [for BS]
C804	0255001	EL 4700 μF 40V [except BS]
C805	0252625	EL 47 μF 25V [except BS]
C805	0252635	EL 470 μF 25V [for BS]
C806	0252625	EL 47 μF 25V
C807	0244173	CD 0.022 μF +80% −20% 50V
C808	0244173	CD 0.022 μF +80% −20% 50V
C809	0252635	EL 1000 μF 25V
C810	0252635	EL 470 μF 25V
C811	0276013	MF 0.022 μF ±10% 50V [for ZS]
C812	0244173	CD 0.022 μF +80% −20% 50V [for ZS]
C901LR	0240045	CC 1000PF ±10% 50V
C902LR	0240051	CC 1500PF ±10% 50V
C903LR	0240039	CC 330PF ±10% 50V
C904LR	0240039	CC 330PF ±10% 50V
C905LR	0252231	EL 100 μF 6.3V
C906LR	0240219	CD 0.039 μF ±10% 25V
C907	0252522	EL 22 μF 16V
C908	0252525	EL 47 μF 16V
C909LR	0240066	CC 0.022 μF +80% −20% 16V
C910LR	0252813	EL 3.3 μF 50V
C911	0252522	EL 22 μF 16V
C912LR	0252813	EL 3.3 μF 50V
C913LR	0240045	CC 1000PF ±10% 50V
C914LR	0240053	CC 2200PF ±20% 16V
C915LR	0252813	EL 3.3 μF 50V
C916	02525312	EL 100 μF 16V
C917	02525312	EL 100 μF 16V
C918LR	0252813	EL 3.3 μF 50V
C919LR	0252813	EL 3.3 μF 50V
C920LR	02528072	EL 0.68 μF 50V
C921	0240061	CC 0.01 μF ±30% 16V
C928LR	0240218	CD 0.033 μF ±10% 25V
C929LR	0240039	CC 330PF ±10% 50V
C930LR	0240215	CD 0.018 μF ±10% 25V
C931LR	0240216	CD 0.022 μF ±10% 25V
C933LR	0240216	CD 0.022 μF ±10% 25V
C934LR	0240037	CC 220PF ±10% 50V
C936LR	0252813	EL 3.3 μF 50V
C939LR	0240036	CC 180PF ±10% 50V
C940	0240061	CC 0.01 μF ±30% 16V
C989	0240061	CC 0.01 μF ±30% 16V [for BS, ES]
C990	0240037	CC 220PF ±10% 50V
C991	02750122	MF 0.015 μF ±10% 50V
C992	02740162	MF 6800PF ±10% 50V
C993	0240051	CC 1500PF ±20% 16V [for BS, ES]
C994	0268435	MF 0.015 μF ±5% 100V
C995	02525312	EL 100 μF 16V
C996LR	0240037	CC 220PF ±10% 50V
C997	0252521	EL 10 μF 16V
C998	0252525	EL 47 μF 16V

RESISTORS

SYMBOL No.	PART No.	DESCRIPTION
⚠R001	0139005	CO 2.7MΩ ±10% RC1/2GF [for US, CS]
R101	0113625	CF 2.7KΩ ±5% SRD1/6P
R102	0113663	CF 100KΩ ±5% SRD1/6P
R103	0113663	CF 100KΩ ±5% SRD1/6P [for ZS]
R104	0113591	CF 100Ω ±5% SRD1/6P [for ZS]
R105	0113639	CF 10KΩ ±5% SRD1/6P [for ZS]
R106	0113617	CF 1.2KΩ ±5% SRD1/6P [for ZS]
R107	0113663	CF 100KΩ ±5% SRD1/6P [for ZS]
R108	0129551	CF 68Ω ±5% SRD1/4P [for BS, ZS]
R108	0129565	CF 150Ω ±5% SRD1/4P [except, BS, ZS]
R109	0113591	CF 100Ω ±5% SRD1/6P [for BS, ZS]
R151	0113639	CF 10KΩ ±5% SRD1/6P
R152	0113639	CF 10KΩ ±5% SRD1/6P [for BS, ES]
R153	0113663	CF 100KΩ ±5% SRD1/6P [for BS, ES]
R154	0113671	CF 220KΩ ±5% SRD1/6P
R155	0113663	CF 100KΩ ±5% SRD1/6P [for BS, ES]
R156	0113623	CF 2.2KΩ ±5% SRD1/6P [for BS, ES]
R157	0113671	CF 220KΩ ±5% SRD1/6P [for BS, ES]
R158	0113631	CF 4.7KΩ ±5% SRD1/6P [for BS, ES]
R159	01133652	CF 1KΩ ±5% SRD1/2P
R201	0113603	CF 330Ω ±5% SRD1/6P [except ZS]
R202	0113603	CF 330Ω ±5% SRD1/6P
R203	0113615	CF 1KΩ ±5% SRD1/6P [for ZS]
R203	0113623	CF 2.2KΩ ±5% SRD1/6P [except ZS]
R204	0113605	CF 390Ω ±5% SRD1/6P
R205	0113619	CF 1.5KΩ ±5% SRD1/6P
R206	0113639	CF 10KΩ ±5% SRD1/6P
R207	0113639	CF 10KΩ ±5% SRD1/6P
R208	0113647	CF 22KΩ ±5% SRD1/6P
R209	0113639	CF 10KΩ ±5% SRD1/6P
R210	0113655	CF 47KΩ ±5% SRD1/6P
R211	0113639	CF 10KΩ ±5% SRD1/6P
R213	0113591	CF 100Ω ±5% SRD1/6P
R214	0113639	CF 10KΩ ±5% SRD1/6P
R215	0113643	CF 15KΩ ±5% SRD1/6P [for US, CS, SA]
R215	0113651	CF 33KΩ ±5% SRD1/6P [except US, CS, SA]
R216	0113645	CF 18KΩ ±5% SRD1/6P
R217	0113659	CF 68KΩ ±5% SRD1/6P [for BS]
R217	0113657	CF 56KΩ ±5% SRD1/6P [except BS]
R218	0113633	CF 5.6KΩ ±5% SRD1/6P [for BS]
R218	0113641	CF 12KΩ ±5% SRD1/6P [except BS]
R219	0113601	CF 270Ω ±5% SRD1/6P
R220	0113639	CF 10KΩ ±5% SRD1/6P
R221	0113635	CF 6.8KΩ ±5% SRD1/6P [except ZS]
R221	0113637	CF 8.2KΩ ±5% SRD1/6P [for ZS]
R222	0113639	CF 10KΩ ±5% SRD1/6P
R223	0113591	CF 100Ω ±5% SRD1/6P
R224	0113627	CF 3.3KΩ ±5% SRD1/6P
R225	0113647	CF 22KΩ ±5% SRD1/6P
R226	0113663	CF 100KΩ ±5% SRD1/6P
R227	0113663	CF 100KΩ ±5% SRD1/6P
R228	0113639	CF 10KΩ ±5% SRD1/6P
R229	1119423	MO 150Ω ±10% RS1B [for BS]
R229	1119425	MO 220Ω ±10% RS1B [except BS]
R301	0129577	CF 470Ω ±5% SRD1/4P [for BS]
R301	0129583	CF 820Ω ±5% SRD1/4P [except BS]
R302	0113635	CF 6.8KΩ ±5% SRD1/6P
R303	0113615	CF 1KΩ ±5% SRD1/6P
R304	0113633	CF 5.6KΩ ±5% SRD1/6P [except ZS]
R304	0113635	CF 6.8KΩ ±5% SRD1/6P [for ZS]
R305	0113633	CF 5.6KΩ ±5% SRD1/6P [except ZS]
R305	0113635	CF 6.8KΩ ±5% SRD1/6P [for ZS]
R306	0113631	CF 4.7KΩ ±5% SRD1/6P
R307	0113631	CF 4.7KΩ ±5% SRD1/6P
R308	0113613	CF 820Ω ±5% SRD1/6P [for ZS]
R308	0113607	CF 470Ω ±5% SRD1/6P [for US, CS]
R308	0113605	CF 390Ω ±5% SRD1/6P [except ZS, US, CS]
R309	0113663	CF 100KΩ ±5% SRD1/6P
R311	0113663	CF 100KΩ ±5% SRD1/6P

SYMBOL No.	PART No.	DESCRIPTION
R315	0113647	CF 22KΩ ±5% SRD1/6P [for ZS]
R316	0113665	CF 120KΩ ±5% SRD1/6P [except ZS]
R316	0113669	CF 180KΩ ±5% SRD1/6P [for ZS]
R317	0113631	CF 4.7KΩ ±5% SRD1/6P
R318	0113651	CF 33KΩ ±5% SRD1/6P
R319	0113611	CF 680Ω ±5% SRD1/6P [for ZS]
R319	0113615	CF 1KΩ ±5% SRD1/6P [except ZS]
R401LR	0113685	CF 820Ω ±5% SRD1/6P [for BS]
R401LR	0113623	CF 2.2KΩ ±5% SRD1/6P [except BS]
R402LR	0113655	CF 47KΩ ±5% SRD1/6P
R403LR	0113621	CF 1.8KΩ ±5% SRD1/6P [except BS]
R403LR	0113625	CF 2.7KΩ ±5% SRD1/6P [for BS]
R404LR	0113645	CF 18KΩ ±5% SRD1/6P [for BS]
R404LR	0113677	CF 390KΩ ±5% SRD1/6P [except BS]
R405LR	0113651	CF 33KΩ ±5% SRD1/6P [except BS]
R406LR	0113647	CF 22KΩ ±5% SRD1/6P [except BS]
R407LR	0113645	CF 18KΩ ±5% SRD1/6P
R408LR	0113661	CF 82KΩ ±5% SRD1/6P [for BS]
R408LR	0113647	CF 22KΩ ±5% SRD1/6P [except BS]
R409	0113635	CF 6.8KΩ ±5% SRD1/6P
R410	0113639	CF 10KΩ ±5% SRD1/6P
R451	0113623	CF 2.2KΩ ±5% SRD1/6P
R452	0113639	CF 10KΩ ±5% SRD1/6P
R499	0113631	CF 4.7KΩ ±5% SRD1/6P
R501	0113623	CF 2.2KΩ ±5% SRD1/6P
R502	0113611	CF 680Ω ±5% SRD1/6P
R503	0113631	CF 4.7KΩ ±5% SRD1/6P
R504	0113635	CF 6.8KΩ ±5% SRD1/6P
R505	0113635	CF 6.8KΩ ±5% SRD1/6P [for BS, ES]
R506	0113635	CF 10KΩ ±5% SRD1/6P [for BS, ES]
R507	0113639	CF 1KΩ ±5% SRD1/6P [for BS, ES]
R508	0113635	CF 6.8KΩ ±5% SRD1/6P [for BS, ES]
R509	0113639	CF 10KΩ ±5% SRD1/6P
R510	0113639	CF 10KΩ ±5% SRD1/6P
R511	0113639	CF 10KΩ ±5% SRD1/6P
R512	0113639	CF 10KΩ ±5% SRD1/6P
R513	0113639	CF 10KΩ ±5% SRD1/6P
R514	0113653	CF 39KΩ ±5% SRD1/6P
R515	0113653	CF 39KΩ ±5% SRD1/6P
R516	0113653	CF 39KΩ ±5% SRD1/6P
R517	0113653	CF 39KΩ ±5% SRD1/6P
R518	0113653	CF 39KΩ ±5% SRD1/6P
R519	0113653	CF 39KΩ ±5% SRD1/6P

SYMBOL No.	PART No.	DESCRIPTION
R520	0113639	CF 10KΩ ±5% SRD1/6P
R521	0113639	CF 10KΩ ±5% SRD1/6P [for EW]
R525	0113623	CF 2.2KΩ ±5% SRD1/6P
R526	0113623	CF 2.2KΩ ±5% SRD1/6P
R527	0113659	CF 68KΩ ±5% SRD1/6P
R528	0113623	CF 2.2KΩ ±5% SRD1/6P
R529	0113655	CF 47KΩ ±5% SRD1/6P
R530	0113655	CF 47KΩ ±5% SRD1/6P
R531	0113655	CF 47KΩ ±5% SRD1/6P
R532	0113291	CF 220Ω ±5% SRD1/2P
R533	0113293	CF 330Ω ±5% SRD1/2P
R534	0113667	CF 150KΩ ±5% SRD1/6P
R535	0113615	CF 1KΩ ±5% SRD1/6P
R536	0113615	CF 1KΩ ±5% SRD1/6P
R537	0113575	CF 22Ω ±5% SRD1/6P
R538	0113657	CF 56KΩ ±5% SRD1/6P
R539	01132872	CF 100Ω ±5% SRD1/2P [except BS]
R539	0129565	CF 150Ω ±5% SRD1/4P [for BS]
R540	01132872	CF 100Ω ±5% SRD1/2P [except BS]
R540	0129565	CF 150Ω ±5% SRD1/4P [for BS]
R541	0113663	CF 100KΩ ±5% SRD1/6P [DISPLAY P.W.B.]
R541	0113639	CF 10KΩ ±5% SRD1/6P [AUDIO P.W.B.]
R542	0113655	CF 47KΩ ±5% SRD1/6P
R543	0113639	CF 10KΩ ±5% SRD1/6P [for BS, ES]
R544	0113667	CF 150KΩ ±5% SRD1/6P [for BS, ES]
R545	0113663	CF 100KΩ ±5% SRD1/6P
R546	0113623	CF 2.2KΩ ±5% SRD1/6P
R547	0113633	CF 5.6KΩ ±5% SRD1/6P
R548	0113623	CF 2.2KΩ ±5% SRD1/6P
R551	0113623	CF 2.2KΩ ±5% SRD1/6P [for BS]
R551	0113627	CF 3.3KΩ ±5% SRD1/6P [except BS]
R552	0113631	CF 4.7KΩ ±5% SRD1/6P
R561	0113663	CF 100KΩ ±5% SRD1/6P [for EW]
R562	0113639	CF 10KΩ ±5% SRD1/6P [for EW]
R563	0113655	CF 47KΩ ±5% SRD1/6P [for EW]
R651LR	0113627	CF 3.3KΩ ±5% SRD1/6P
R652LR	0113627	CF 3.3KΩ ±5% SRD1/6P
R653LR	0113631	CF 4.7KΩ ±5% SRD1/6P
R654LR	0113643	CF 15KΩ ±5% SRD1/6P
R701LR	0113623	CF 2.2KΩ ±5% SRD1/6P
R702LR	0113663	CF 100KΩ ±5% SRD1/6P
R703LR	0113613	CF 820Ω ±5% SRD1/6P [for BS]
R703LR	0113605	CF 390Ω ±5% SRD1/6P [except BS]
R704LR	0129609	CF 2.2KΩ ±5% SRD1/4P [for BS]

SYMBOL No.	PART No.	DESCRIPTION
R704LR	0129611	CF 2.7KΩ ±5% SRD1/4P [except BS]
R705LR	0129609	CF 2.2KΩ ±5% SRD1/4P [for BS]
R705LR	0129611	CF 2.7KΩ ±5% SRD1/4P [except BS]
R706LR	0113663	CF 100KΩ ±5% SRD1/6P
⚠R707	1110621	FR 100Ω ±5% RN1/4B
R708	0129601	CF 1KΩ ±5% SRD1/4P
R709	0129617	CF 4.7KΩ ±5% SRD1/4P
⚠R710	1110621	FR 100Ω ±5% RN1/4B
R711LR	1119029	ME 4.7Ω ±10% RN1B
R712LR	1119427	ME 330Ω ±10% RN1B [for BS]
R712LR	0119527	ME 330Ω ±10% RN2B [except BS]
R751	0113665	CF 120KΩ ±5% SRD1/6P
R752	0113665	CF 120KΩ ±5% SRD1/6P
R753	0113663	CF 100KΩ ±5% SRD1/6P
R754	0113615	CF 1KΩ ±5% SRD1/6P
R755	0113663	CF 100KΩ ±5% SRD1/6P
R756	0129617	CF 4.7KΩ ±5% SRD1/4P [for BS]
R756	0129631	CF 10KΩ ±5% SRD1/4P [except BS]
R757	0113635	CF 6.8KΩ ±5% SRD1/6P [for BS]
R757	0113647	CF 22KΩ ±5% SRD1/6P [except BS]
R758	0110131	MO 270Ω ±5% RS1B
R759	0110131	MO 270Ω ±5% RS1B [except BS]
⚠R801	1113823	FR 3.3Ω ±5% RN1B [for BS]
R801	1119155	ME 22Ω ±10% RN2B [except BS]
R802	0129581	CF 680Ω ±5% SRD1/4P [for BS]
R802	0129617	CF 4.7KΩ ±5% SRD1/4P [except BS]
R803	0129613	CF 3.3KΩ ±5% SRD1/4P [for BS]
R803	0129601	CF 1KΩ ±5% SRD1/4P [except BS]
R805	0129581	CF 680Ω ±5% SRD1/4P [for BS]
R805	0129617	CF 4.7KΩ ±5% SRD1/4P [except BS]
⚠R806	1110601	ME 10Ω ±5% RN1/4B [for BS]
⚠R806	1110625	FR 220Ω ±5% RN1/4B [except BS]
R807	0129577	CF 470Ω ±5% SRD1/4P [for BS]
R807	0129601	CF 1KΩ ±5% SRD1/4P [except BS]
⚠R809	1110601	FR 10Ω ±5% RN1/4B [except BS]
⚠R810	1110601	FR 10Ω ±5% RN1/4B [except BS]
R901LR	0113577	CF 27Ω ±5% SRD1/6P

MC-Service

SYMBOL No.	PART No.	DESCRIPTION
R902LR	0113661	CF 82KΩ ±5% SRD1/6P
R903LR	0113627	CF 3.3KΩ ±5% SRD1/6P
R904	0113625	CF 2.7KΩ ±5% SRD1/6P
R905LR	0113623	CF 2.2KΩ ±5% SRD1/6P
R906LR	0113627	CF 3.3KΩ ±5% SRD1/6P
R907	0113651	CF 33KΩ ±5% SRD1/6P
R908LR	0113637	CF 8.2KΩ ±5% SRD1/6P
R909LR	0113643	CF 15KΩ ±5% SRD1/6P
R910LR	0113639	CF 10KΩ ±5% SRD1/6P
R911	0113639	CF 10KΩ ±5% SRD1/6P
R912	0113651	CF 33KΩ ±5% SRD1/6P
R913LR	0113639	CF 10KΩ ±5% SRD1/6P
R914LR	0113639	CF 10KΩ ±5% SRD1/6P
R915	0113651	CF 33KΩ ±5% SRD1/6P
R916	0113639	CF 10KΩ ±5% SRD1/6P
R917LR	0113627	CF 3.3KΩ ±5% SRD1/6P
R918LR	0113623	CF 2.2KΩ ±5% SRD1/6P
R919LR	0113663	CF 100KΩ ±5% SRD1/6P
R920	0113639	CF 10KΩ ±5% SRD1/6P
R921LR	0113633	CF 5.6KΩ ±5% SRD1/6P
R922	0113639	CF 10KΩ ±5% SRD1/6P
R923	0113654	CF 43KΩ ±5% SRD1/6P
R924LR	0113653	CF 39KΩ ±5% SRD1/6P
R925LR	0113647	CF 22KΩ ±5% SRD1/6P
R926	0113631	CF 4.7KΩ ±5% SRD1/6P
R927	0113657	CF 56KΩ ±5% SRD1/6P
R928LR	0113635	CF 6.8KΩ ±5% SRD1/6P
R929LR	0113631	CF 4.7KΩ ±5% SRD1/6P
R930LR	0113641	CF 12KΩ ±5% SRD1/6P
R931LR	0113639	CF 10KΩ ±5% SRD1/6P
R932LR	0113619	CF 1.5KΩ ±5% SRD1/6P
R933LR	0113583	CF 47Ω ±5% SRD1/6P
R935LR	0113625	CF 2.7KΩ ±5% SRD1/6P
R938LR	0113627	CF 3.3KΩ ±5% SRD1/6P
R939	0113639	CF 10KΩ ±5% SRD1/6P
R942	0113667	CF 150KΩ ±5% SRD1/6P
R944	0113639	CF 10KΩ ±5% SRD1/6P
R945	0113639	CF 10KΩ ±5% SRD1/6P
R946	0113639	CF 10KΩ ±5% SRD1/6P
R947	0113663	CF 100KΩ ±5% SRD1/6P
R948	0113633	CF 5.6KΩ ±5% SRD1/6P
R949	0113665	CF 120KΩ ±5% SRD1/6P
R950	0113617	CF 1.2KΩ ±5% SRD1/6P
R951	0113647	CF 22KΩ ±5% SRD1/6P
R952	0113647	CF 22KΩ ±5% SRD1/6P
R953	0113647	CF 22KΩ ±5% SRD1/6P
R954	0113639	CF 10KΩ ±5% SRD1/6P
R955	01132922	CF 270Ω ±5% SRD1/2P [for BS]
R955	0113293	CF 330Ω ±5% SRD1/2P [except BS]
R956	01132912	CF 220Ω ±5% SRD1/2P [for BS]
R956	0113293	CF 330Ω ±5% SRD1/2P [except BS]
R959	0113639	CF 10KΩ ±5% SRD1/6P
R960LR	0113669	CF 180KΩ ±5% SRD1/6P
R962LR	0113647	CF 22KΩ ±5% SRD1/6P
R963	0113639	CF 10KΩ ±5% SRD1/6P
R964	0113663	CF 100KΩ ±5% SRD1/6P
R965	0113639	CF 10KΩ ±5% SRD1/6P
R966	0113657	CF 56KΩ ±5% SRD1/6P
R967LR	0113657	CF 56KΩ ±5% SRD1/6P
R968	0113639	CF 10KΩ ±5% SRD1/6P
R969	0113639	CF 10KΩ ±5% SRD1/6P
R971	1119425	MO 220Ω ±10% RS1B
R972	0113641	CF 12KΩ ±5% SRD1/6P
R973	0113647	CF 22KΩ ±5% SRD1/6P
R991	0113649	CF 27KΩ ±5% SRD1/6P
R992	0113567	CF 10Ω ±5% SRD1/6P
R994	0113639	CF 10KΩ ±5% SRD1/6P
R995	0113665	CF 120KΩ ±5% SRD1/6P
R996	0113651	CF 33KΩ ±5% SRD1/6P [for BS, ES]
R997	0113663	CF 100KΩ ±5% SRD1/6P [for BS, ES]

ICs & TRANSISTORS

SYMBOL No.	PART No.	DESCRIPTION
IC201	23684312	AN278
IC202	23004122	LA1265
IC301	23005612	LA3361
IC401	2388302	BA4558HT
IC402	2387564	TC9152P
IC501	23008612	μPD1713AG-015
IC502	2387611	BA6251
IC651LR	23008412	BA3812L
IC701	2301751	STK4112Ⅱ [for BS]
IC701	2301161	STK4142Ⅱ [except BS]
IC751	2387582	μPC1237HA
IC901	23010522	BA3416BL
IC902	2388302	BA4558HT
IC903	23020912	CXA1101
IC904	2388302	BA4558HT
IC981	2387051	LB1403
Q101	2318303	2SC1740S(S) [for ZS]
Q102	2328803	2SK104(H) [for ZS]
Q151	2318303	2SC1740S(S) [for BS, ES]
Q152	2318303	2SC1740S(S) [for BS, ES]
Q201	2318303	2SC1740S(S)
Q202	2318303	2SC1740S(S)
Q203	2318303	2SC1740S(S)
Q301	2318303	2SC1740S(S)
Q302	2318303	2SC1740S(S)
Q303	2329183	2SA1015(GR)
Q304	2318303	2SC1740S(S)
Q501	2318303	2SC1740S(S)
Q502	2318303	2SC1740S(S)
Q503	2318303	2SC1740S(S) [for BS, ES]
Q504	2318303	2SC1740S(S) [for BS, ES]
Q505	2318303	2SC1740S(S)
Q506	2329183	2SA1015(GR)
Q507	2329183	2SA1015(GR)
Q508	2329183	2SA1015(GR) [for EW]
Q509	2318303	2SC1740S(S) [for EW]
Q510	0573486	2SC460B
Q511	2329183	2SA1015(GR)
Q512	2329183	2SA1015(GR)
Q513	2329183	2SA1015(GR)
Q514	2329183	2SA1015(GR) [for BS, ES]
Q515	2329183	2SA1015(GR) [for BS, ES]
Q801	2317822	2SD880(Y)
Q802	2318303	2SC1740S(S)
Q803	2328625	2SB647C
Q901LR	2318303	2SC1740S(S)
Q902	2318303	2SC1740S(S)
Q903LR	2318303	2SC1740S(S)
Q905LR	2318303	2SC1740S(S)
Q906LR	2318303	2SC1740S(S)
Q907LR	2318303	2SC1740S(S)
Q908LR	2318303	2SC1740S(S)
Q910	2318303	2SC1740S(S)
Q911	2318303	2SC1740S(S)
Q912	2318303	2SC1740S(S)
Q913	2318303	2SC1740S(S)
Q914	2318303	2SC1740S(S)
Q915	2329183	2SA1015(GR)
Q916LR	2329952	2SD655(E)
Q917	2318303	2SC1740S(S)
Q991	2317782	2SC2235(Y)
Q992	2329952	2SD655(E) [for BS, ES]

DIODES

SYMBOL No.	PART No.	DESCRIPTION
D101	23376012	1S2473
D102	23376012	1S2473
D103	2337931	1K60R [for ZS]
D104	2337931	1K60R [for ZS]
D151	23376012	1S2473
D152	23376012	1S2473
D153	2397321	KV1260
D154	2397321	KV1260 [for BS, ES]
D155	23376012	1S2473 [for BS, ES]
D156	23376012	1S2473 [for BS, ES]
D157	23376012	1S2473 [for BS, ES]
D158	23376012	1S2473 [for BS, ES]
D159	23376012	1S2473 [for BS, ES]
D455	23376012	1S2473
D456	23376012	1S2473
D457	23376012	1S2473
D501	23376012	1S2473
D502	23376012	1S2473
D503	23376012	1S2473
D504	23376012	1S2473
D505	23376012	1S2473

SYMBOL No.	PART No.	DESCRIPTION
D506	23376012	1S2473
D507	23376012	1S2473
D508	23376012	1S2473
D509	23376012	1S2473
D510	23376012	1S2473
D511	23376012	1S2473
D512	23376012	1S2473
		[except US, CS, SA]
D513	23376012	1S2473
D514	23376012	1S2473
		[except US, CS]
D515	23376012	1S2473
D516	23376012	1S2473
D517	23376012	1S2473
D518	23376012	1S2473
D519	23376012	1S2473
D551	2398781	11E2
D751	23371512	1S2076A
D752	2398781	11E2
D801	2338162	S2VB20
		[for BS]
D801	2337461	S4VB20
		[except BS]
D802	2398781	11E2
D803	2398781	11E2
D901	23376012	1S2473
D902	23376012	1S2473
D903	23376012	1S2473
D904	23376012	1S2473
D905	23376012	1S2473
D906	23376012	1S2473
D907	23376012	1S2473
D908	23376012	1S2473
D909	23376012	1S2473
D910	23376012	1S2473
D911	23376012	1S2473
D912	23376012	1S2473
ZD501	23375242	HZ9B1
ZD502	2337121	HZ6A
ZD551	2339657	HZ5C-1
ZD801	2337189	HZ-15-3
		[except BS]
ZD801	2337564	HZ12-B1
		[for BS]
ZD802	2337189	HZ-15-3
		[except BS]
ZD802	2337564	HZ12-B1
		[for BS]
ZD901	2337613	HZ-3A-3
ZD902	23371222	HZ-6B
LED451	23391022	SLP-160C
LED452	23391022	SLP-160C
LED453	23391022	SLP-160C
LED454	23391022	SLP-160C
LED981	2398401	SLR-54DC5
LED982	2398401	SLR-54DC5
LED983	2398401	SLR-54DC5
LED984	23391022	SLP-160C
LED985	23391022	SLP-160C
LED551-555	2398453	LED

SYMBOL No.	PART No.	DESCRIPTION
		VARIABLE RESISTORS
RT301	0150958	10KΩ-(B) (FM MPX VCO ADJ.)
RT901LR	0158928	100kΩ-(B) (BIAS ADJ.)
RT902	0158922	1kΩ-(B) (TAPE SPEED ADJ.)
RV651	0167001	100kΩ-(B) (G.E CONTROL)
RV652	0167001	100kΩ-(B) (G.E CONTROL)
RV653	0167001	100kΩ-(B) (G.E CONTROL)
RV654	0167001	100kΩ-(B) (G.E CONTROL)
RV655	0167001	100kΩ-(B) (G.E CONTROL)
RV656	0167002	250kΩ (BALANCE CONTROL)
RV657	0158781	100kΩ-(B) (VOLUME CONTROL)
RV901	0150701	10kΩ-(B) (REC. LEVEL CONTROL)
		COILS & TRANSFORMERS
L151	2137373	AM ANT. coil (MW)
L152	2136493	AM OSC. coil
L153	2137374	AM ANT. coil (LW) [for BS, ES]
L154	2136494	LW OSC. coil [for BS, ES]
L901LR	2227991	Choke coil 3.3MH
L902LR	2228003	Choke coil 22mH
L991	2136823	Bias OSC. coil
LC901LR	2228103	Dolby filter
T201	2137033	FM discriminater coil
T202	2154493	AM IF transformer
		MISCELLANEOUS
AT101	2689552	Antenna terminal
JK701	2689551	4P push terminal
JK702	2677863	Headphones jack
MF201	2135002	Ceramic filter
MF202	2135002	Ceramic filter [for ZS]
MF203	2135002	Ceramic filter
MF204	2155152	AM ceramic filter
RY701	2647761	DC relay
X501	2785302	Crystal
LCD1	2780081	Liquid crystal display
⚠S001	2600551	Power switch
⚠S002	2618053	Voltage switch (VOLTAGE SELECT) [for EW]
S451	2639682	Tact switch (TAPE)
S452	2639682	Tact switch (PHONO)
S453	2639682	Tact switch (CD)
S454	2639682	Tact switch (TUNER)
S501	2639682	Tact switch (FM)
S502	2639682	Tact switch (AUTO)
S503	2639682	Tact switch (P4)
S504	2639682	Tact switch (P3)
S505	2639682	Tact switch (P2)
S506	2639682	Tact switch (P1)
S507	2639682	Tact switch (MW)
S508	2639682	Tact switch (MEMORY)
S509	2639682	Tact switch (P8)
S510	2639682	Tact switch (P7)
S511	2639682	Tact switch (P6)
S512	2639682	Tact switch (P5)
S513	2639682	Tact switch (TUNING DOWN)

SYMBOL No.	PART No.	DESCRIPTION
S514	2639682	Tact switch (TUNING UP)
S515	2639682	Tact switch (LW) [for BS, ES]
S516	2639682	Tact switch (+10)
S517	2639682	Tact switch (P10)
S518	2639682	Tact switch (P9)
S519	2629381	Slide switch [AM SPACING] [for EW]
S901	2628983	Slide switch (REC/PLAY SELECT)
S902	2600562	2 key push switch (TAPE SELECT)
S903	2600561	2 key push switch (DOLBY NR/DUBBING SPEED SELECT)
S991	2629381	Slide switch (RIF) [for BS, ES]
CP101	2137301	FM band-pass filter [for ZS]
CP301	2136313	Low pass filter [for ZS]
⚠F001	2727964	Fuse 2.5A 125V [for US, CS]
⚠F001	2727738	Fuse T400mA [for BS]
⚠F001	2727191	Fuse T1A 250V [except US, CS, BS]
⚠F801	2727893	Fuse 2A 125V [for US, CS]
⚠F801	2727745	Fuse T2A 250V [for BS]
⚠F801	2727193	Fuse T2A 250V [except US, CS, BS]
⚠F802	2727898	Fuse 800mA 125V [for US, CS]
⚠F802	2727730	Fuse T630mA 250V [for BS]
⚠F802	2727195	Fuse T630mA 250V [except US, CS, BS]
⚠F803	2727898	Fuse 800mA 125V [for US, CS]
⚠F803	2727730	Fuse T630mA 250V [for BS]
⚠F803	2727195	Fuse T630mA 250V [except US, CS, BS]
FE101	2405031	FM tuner pack [except ZS]
FE101	2405041	FM tuner pack [for ZS]
P401	2678921	4P US pin jack [except BS]
P401	2678151	Pin jack [for BS]
	3909371	LCD holder
		for Accessories
	2758342	AM loop antenna
	2757528	FM antenna [for US, CS, SA]
⚠	2667922	Siemense plug [for EW]

SYMBOL No.	PART No.	DESCRIPTION
		CABINET CHASSIS
1	4479031	Top cover
2	8679608	4 ϕ x 8 DT screw
3	8679406	3 ϕ x 6 DT screw
4	40457712	Cassette door (1) assy
5	40457722	Cassette door (2) assy
6	3309082	Power button
7	86914102	3 ϕ x 10 BT screw
8	3307203	Push button
9	3309161	REC VOL. knob
10	3309131	VOL. knob
11	3309141	Function button
12	3309091	EQ knob
14	3309121	Tuning button
15	3309111	Band change button [for US, CS, ZS, EW]
	3309112	Band change button [for BS, ES, SA]
16	40457212	Front panel assy [for US, CS, ZS, EW]
	40457222	Front panel assy [for BS, ES, SA]
17	3950381	Damper assy
18	2588921	Counter
19	4479061	Rear plate [for US]
	4479062	Rear plate [for CS]
	4479063	Rear plate [for ES]
	4479064	Rear plate [for BS]
	4479065	Rear plate [for SA]
	4479066	Rear plate [for ZS]
	4479067	Rear plate [for EW]
20	86994102	3 ϕ x 10 BT screw
21	86714062	3 ϕ x 6 bind tapping screw
22	4597971	PT screw
23	3927411	Foot
24	8671410	3 ϕ x 10 DT screw
25	8671414	3 ϕ x 14 DT screw
26	8671408	3 ϕ x 8 DT screw
27	2589323	TN-21SW-985 deck mecha
28	46919112	Counter belt
29	4475821	Eject spring
30	4475831	Eject spring
31	3309181	D operation button
32	3309171	D operation button
33	3309172	D operation button
34	3309173	D operation button
35	3309174	D operation button
36	3309175	D operation button
37	3309176	D operation button
38	8671306	2.6 ϕ x 6 DT screw
39	4584792	BT bind screw (2)
40	3392251	REC spring
⚠41	2702713	Power supply cord [for US, CS]

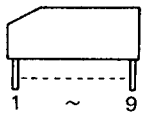
SYMBOL No.	PART No.	DESCRIPTION
⚠41	2749582	Power supply cord [for BS]
⚠	2749622	Power supply cord [for SA]
⚠	2718091	Power supply cord [for ZS]
⚠	2707709	Power supply cord [for ES]
⚠	2706584	Power supply cord [for EW]
⚠42	2267461	Power transformer [for US, CS]
⚠	2267462	Power transformer [for SA]
⚠	2267463	Power transformer [for ES, ZS]
⚠	2267464	Power transformer [for EW]
⚠	2267491	Power transformer [for BS]
43	8671608	4 ϕ x 8 DT screw
44	2677911	Socket (FM 75) [for BS, ES, SA, EW]
	2658391	DIN antenna socket [for ZS]
⚠45	3913006	Bushing [except EW]
⚠	0043793	Bushing [for EW]
46	4567412	3 ϕ x 8 DT bind screw (heat sink) [except BS]
47	8671414	3 ϕ x 14 DT screw (IC701)
		TURNTABLE SECTION (HT-MD30/MD30X)
1	4817521	45RPM adaptor
2	4835665	Starting lever
3	4835668	Knob shaft
4	4835669	Oil shaft
5	4835660	Press set
6	4835671	Lifter
7	4835675	Pendulum set
8	3307471	Push button
9	3307461	Push button
10	3802391	Bottom plate
11	4835676	Platter shaft assy
12	4835670	Press plate
13	4835681	Hanging plate for motor
14	4835682	Pendulum
15	4835683	Hinge assy
16	4835693	Micro switch
17	4835694	Push switch
18	4835696	PC board
19	4835697	PC board
20	4835703	Screw
21	4835704	Screw
22	4835706	Screw
23	4835707	Screw
24	4835708	Screw
25	4835700	Screw
26	4835712	Screw
27	4835713	Screw

SYMBOL No.	PART No.	DESCRIPTION
28	4858367	Washer
29	4835716	Spring
30	4835717	Spring
31	4835718	Spring
32	4835719	Steel cramper
33	4835721	Spring
34	4835723	Pendulum
35	4835724	Belt
36	4835725	Rubber tube
37	4835726	Rubber foot (L)
39	4817549	Washer
40	4835729	Washer
41	4817557	E ring
42	4858373	Oil shaft
43	4858371	Screw
44	4835736	Steel ball
45	4858372	Screw
46	4835737	Cam gear assy
47	4835738	Platter assy
48	4835739	Return link assy
49	4835730	Pick up stand assy
50	4835741	Tone arm assy [for HT-MD30]
50	4839911	Tone arm assy [for HT-MD30X]
51	4835745	Dust cover assy
52	4859281	Player base assy [for HT-MD30]
	4859291	Player base assy [for HT-MD30X]
53	4835743	Motor assy
54	4835695	5P connector assy
55	4835731	Washer
		CASSETTE CHASSIS
1	48189922	Switch plate
2	4839371	Push button actuator assy
3	4823651	REC button lever
4	4823661	PLAY button lever
5	4823671	RWD button lever
6	4823681	FF button lever
7	4823691	STOP button lever
8	4823701	PAUSE button lever assy
9	48189902	RWD lever
10	4833451	PAUSE lever
11	48191322	PAUSE lever spring
12	48191332	PAUSE stopper
13	4850692	Button lever spring (K)
14	48190072	Button lever spring (A)
15	48202172	PLAY button lever spring (S)
16	4831614	Head panel
17	48190082	Actuator spring
18	48190092	Auto lever
19	48190002	Auto lever spring
20	48202142	Button lever spring (B)
21	4832091	Leaf switch
22	4832522	Screw
23	48202192	Head panel
24	4832451	RWD button lever
25	48190142	Head base
26	4832412	Sensing plate assy

SYMBOL No.	PART No.	DESCRIPTION
27	4832452	FF button lever
28	48202212	Head panel spring (S)
29	4832482	Sub. plate
30	48190062	P.R. stopper
31	48190452	PME screw
32	48190172	Azimuth spring
33	4839372	Pinch roller arm assy
34	4850693	Pinch roller spring
35	48316102	Metal guide
36	4839373	RF pulley arm assy
37	48202252	RF pulley arm spring
38	4835913	RF arm collar screw
39	48202272	RF belt
40	4850703	Flywheel assy
41	4833454	Flywheel assy
42	4839377	Take up gear plate assy
43	4839378	Take up roller gear
44	48190202	T.G. plate spring
45	4839379	FF gear
46	4839370	Back tension spring
47	4842431	Suppley reel assy
48	4839381	Take up reel assy
49	4832421	Record safety lever
50	4839382	Back tension spring
51	48190392	Motor rubber
52	48195332	Collar screw
53	4833457	Main belt
54	4833452	REC. SP plate
55	4850696	Eject slide lever
56	48190442	Eject slide lever spring
57	48190362	Pack spring
58	48202182	Switch actuator spring
59	48191862	2 ϕ x 3 tams screw
60	48190632	2 ϕ x 3 C tapping screw
61	48190682	2 ϕ x 4 C tapping screw
62	4819607	2 ϕ x 5 bind tapping screw
63	48196112	2 ϕ x 6 screw
64	48190602	2 ϕ x 7 + − cap screw
65	48196002	Azimuth screw
66	48192022	2 ϕ x 2.5 EH screw (camera)
67	4832471	2 ϕ x 2.5 screw (camera)
68	4832472	1.7 ϕ x 4.5 screw (camera)
69	4850698	P washer cut 1.2 ϕ x 3.7 x 0.4
70	4819078	P washer cut 1.55 ϕ x 3.8 x 0.5
71	48324322	P washer cut 2.05 ϕ x 4 x 0.5
72	48195282	Head base
73	4831623	Operation lever
74	4831624	B frame (S)
75	48192322	Button lever shaft
76	48190722	2 ϕ x 7 screw (for camera)
77	4833463	P kick lever (B)
78	4833464	P kick lever (A)
79	4833465	P.K. collar screw (A)
80	4833460	P. kick lever collar
81	4833467	P kick lever spring
82	4832102	Leaf switch
83	4833468	M.T.A collar
84	4850699	RC lever C
85	4833472	2 ϕ x 6 C tapping screw
86	46919112	Counter belt
87	48195292	E head spring

SYMBOL No.	PART No.	DESCRIPTION
88	4850702	Washer 2.4 ϕ x 7 x 0.1
89	48195442	2 ϕ x 8 + − cup screw
90	3909461	REC lever (A)
91	4598191	REC lever PK collar screw (A)
92	48195412	E head
93	48190502	R/P head
94	4831657	Motor assy
95	48202152	Sub. chassis
96	48189912	Main base assy
98	4850708	Anti vibration felt mat
99	4833455	PAUSE bracket
100	48191912	Tapping screw 2 ϕ x 6
101	4835917	Switch bracket
102	4839383	Anti vibration felt mat
103	4835915	Motor bracket

AN278
LB1403



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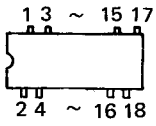

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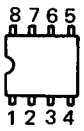

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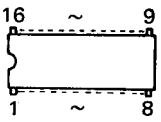

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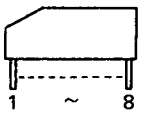

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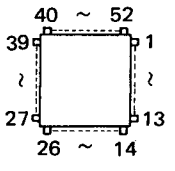

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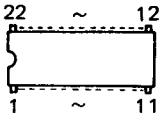

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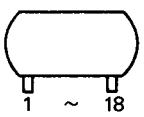

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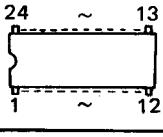

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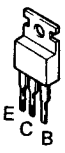
2SD880(Y)



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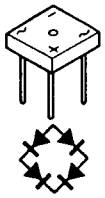
KV1260

S2VB20
S4VB20



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2SC460B
2SC1740S(S)
2SK104(H)

11E2
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HZ-15-3
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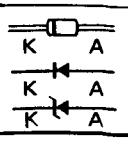
HZ6A
HZ-6B
HZ-3A-3



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